FIG. 1

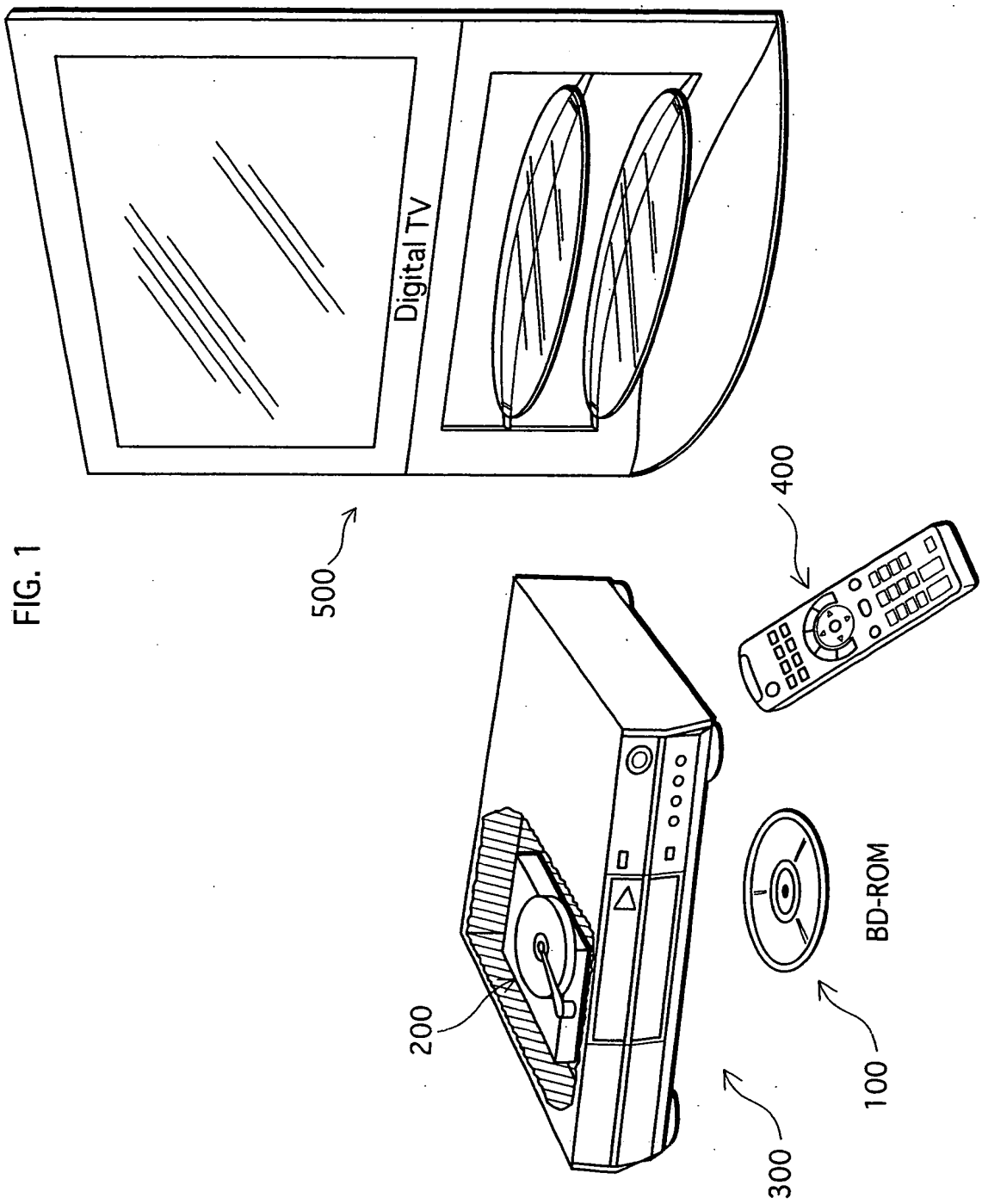

FIG. 2

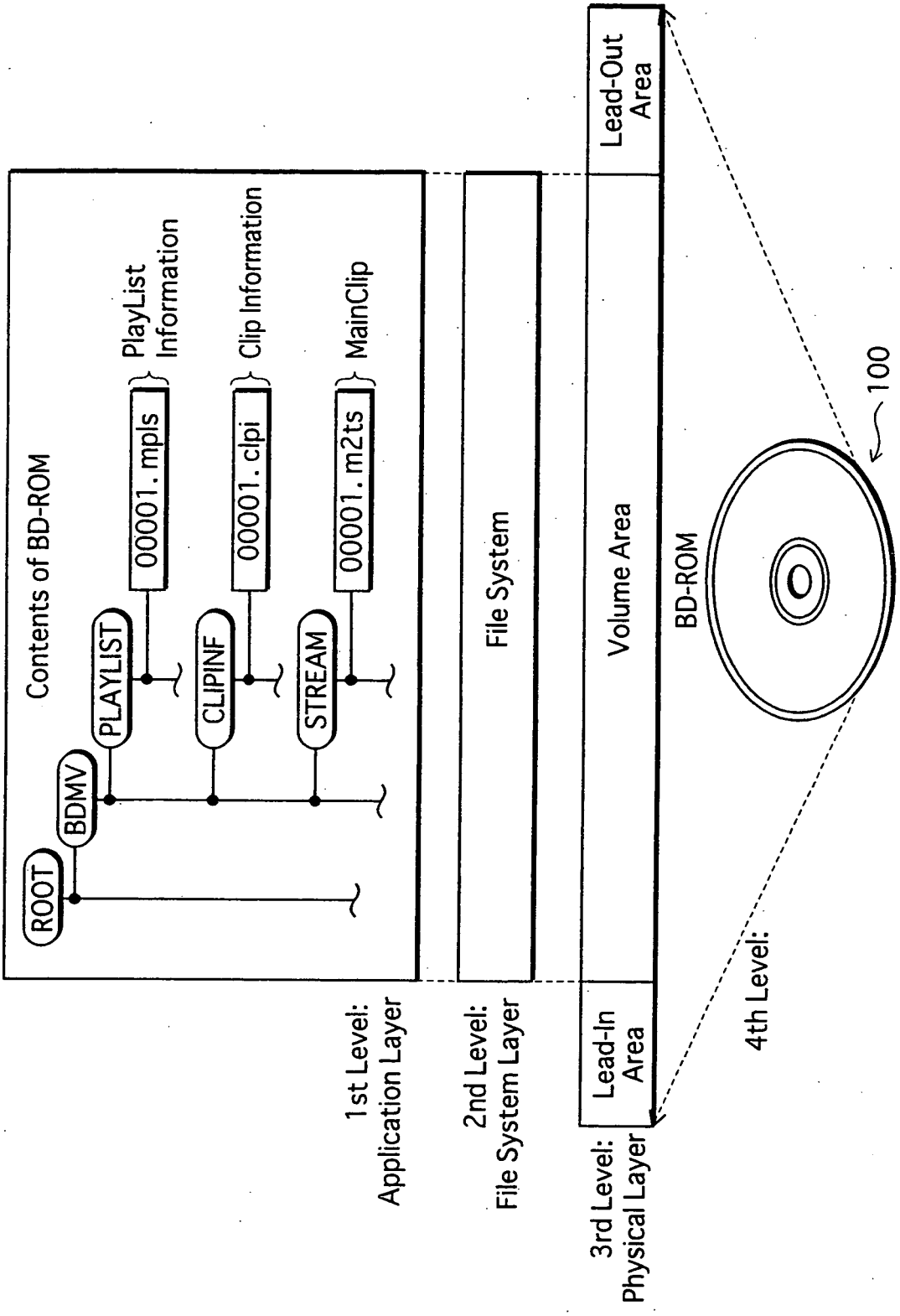
Contents of BD-ROM
ROOT
BDMV
PLAYLIST
CLIPINF
STREAM
00001.mpls
00001.clpi
00001.m2ts
PlayList Information
Clip Information
MainClip
1st Level: Application Layer
File System
2nd Level: File System Layer
Lead-In Area
Volume Area
Lead-Out Area
3rd Level: Physical Layer
BD-ROM
100
4th Level:

FIG. 3

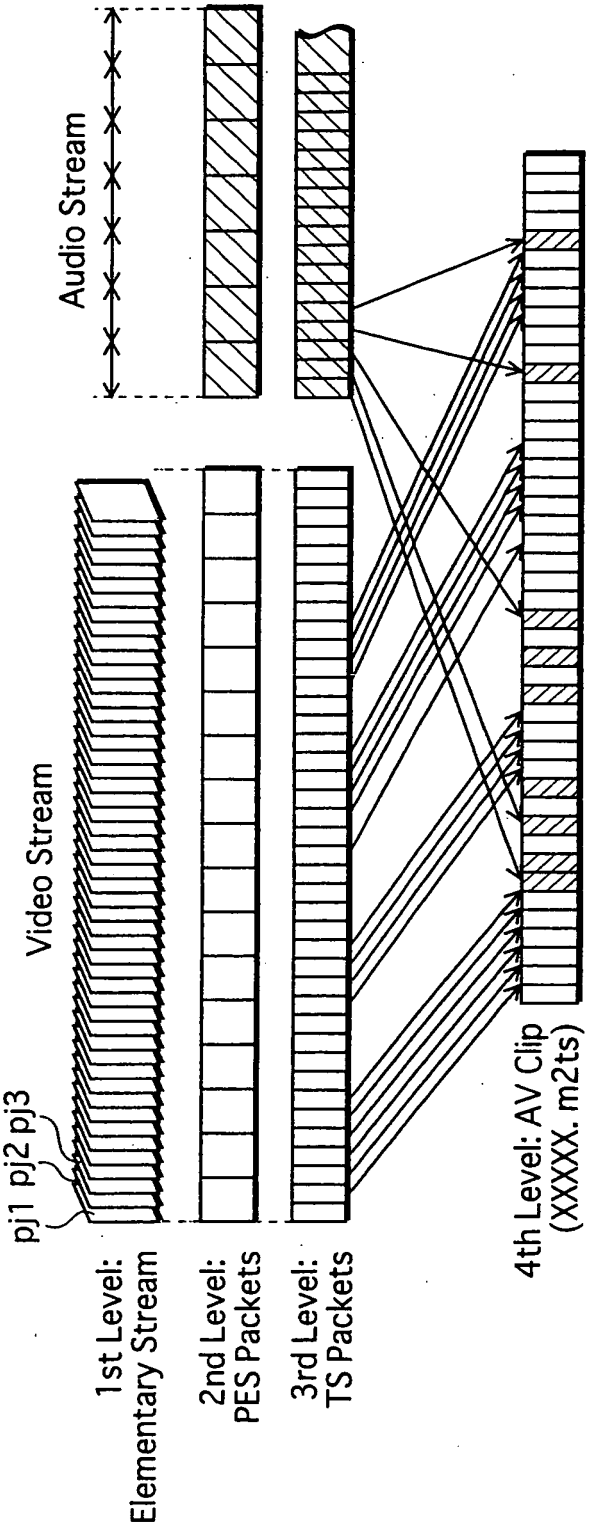
Audio Stream
Video Stream
pj1 pj2 pj3
1st Level: Elementary Stream
2nd Level: PES Packets
3rd Level: TS Packets
4th Level: AV Clip (XXXXX. m2ts)

FIG. 4

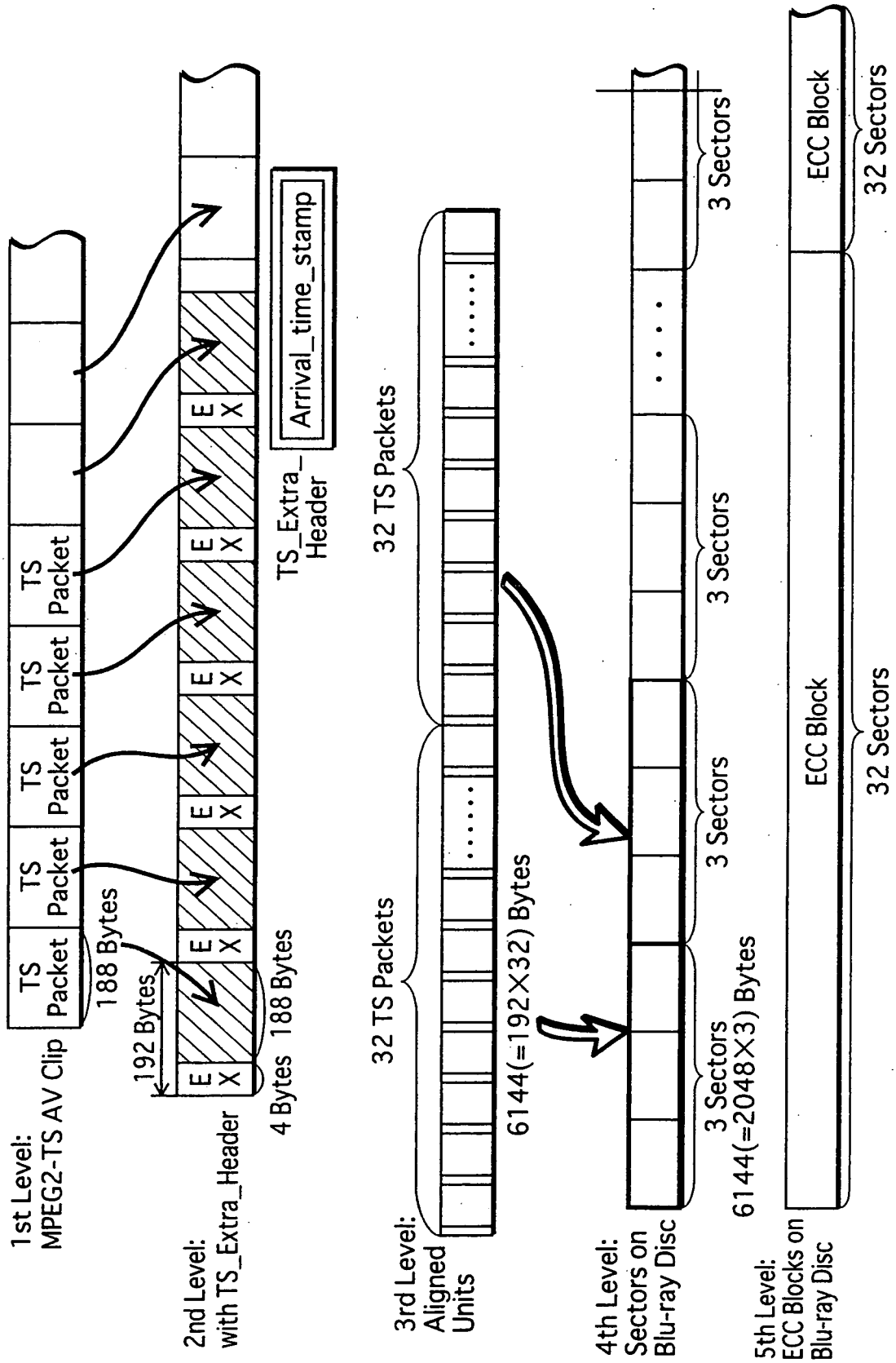
1st Level:
MPEG2-TS AV Clip
TS Packet
188 Bytes
192 Bytes
2nd Level:
with TS_Extra_Header
EX
4 Bytes
188 Bytes
TS_Extra_Header
Arrival_time_stamp
3rd Level:
Aligned Units
32 TS Packets
6144(=192X32) Bytes
4th Level:
Sectors on Blu-ray Disc
3 Sectors
6144(=2048X3) Bytes
5th Level:
ECC Blocks on Blu-ray Disc
ECC Block
32 Sectors

FIG. 5

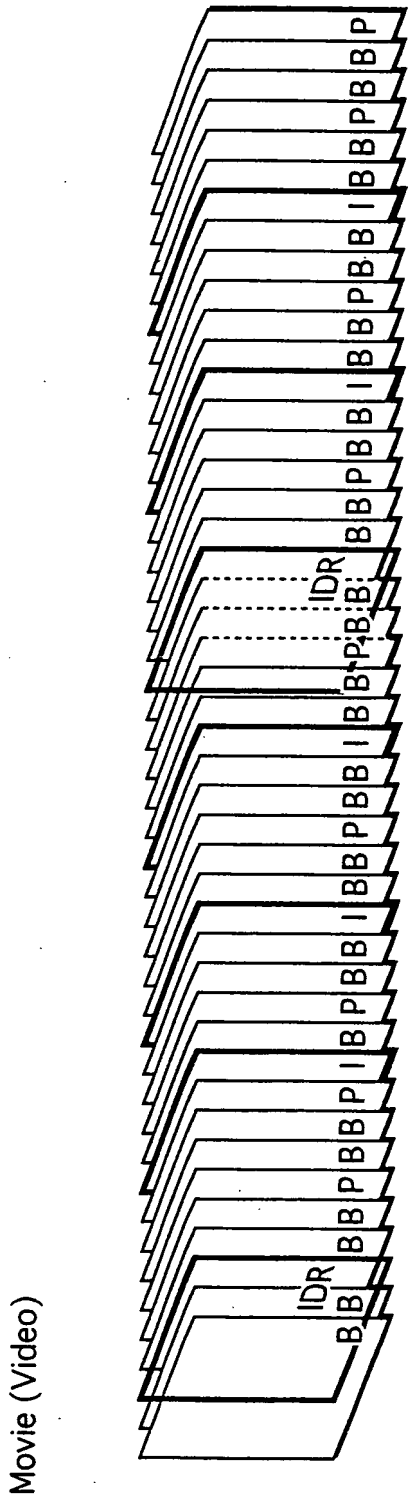
Movie (Video)
IDR
B B P B B P B B I B B P B B P B B I B B P B B P B B I

FIG. 6A

IDR Picture in MPEG4-AVC

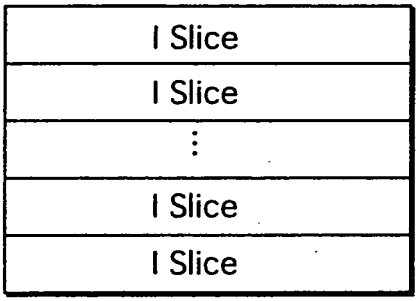

FIG. 6B

Non-IDR I Picture

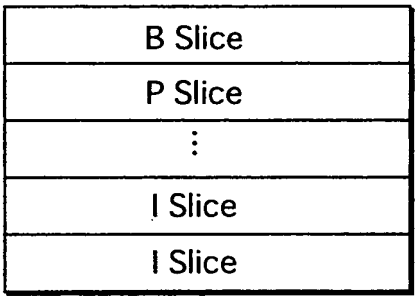

FIG. 6C

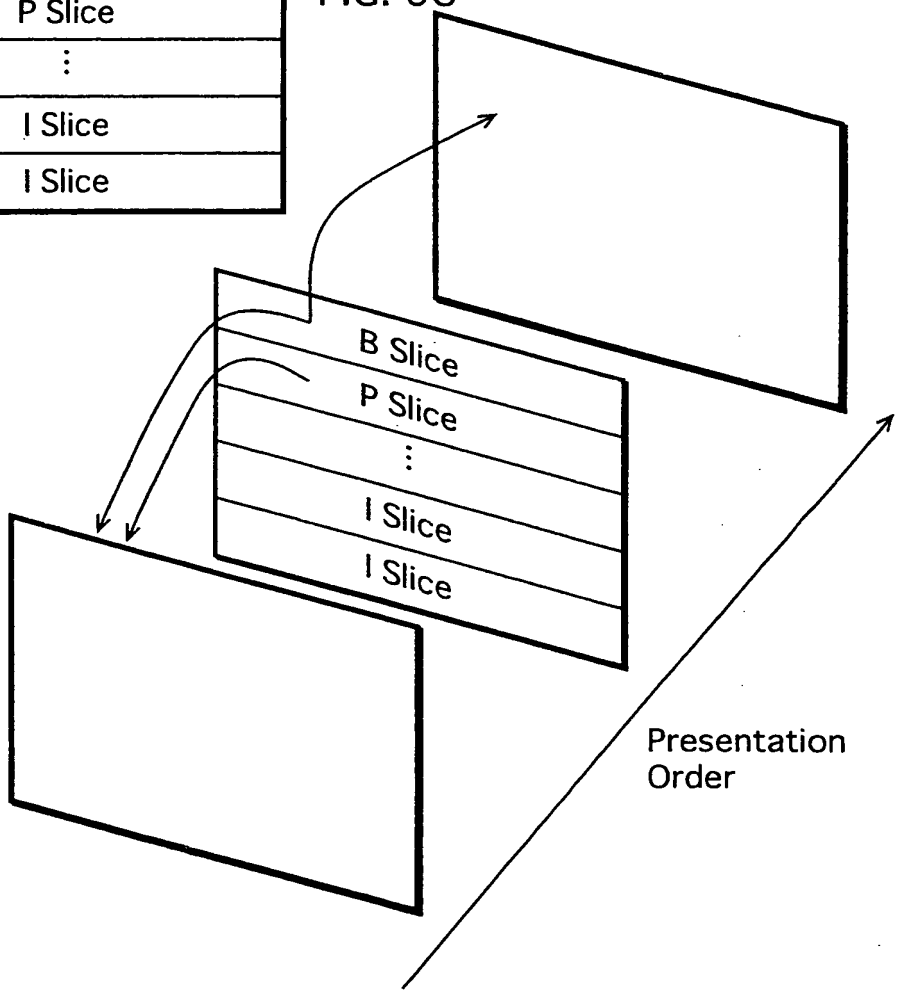

FIG. 7

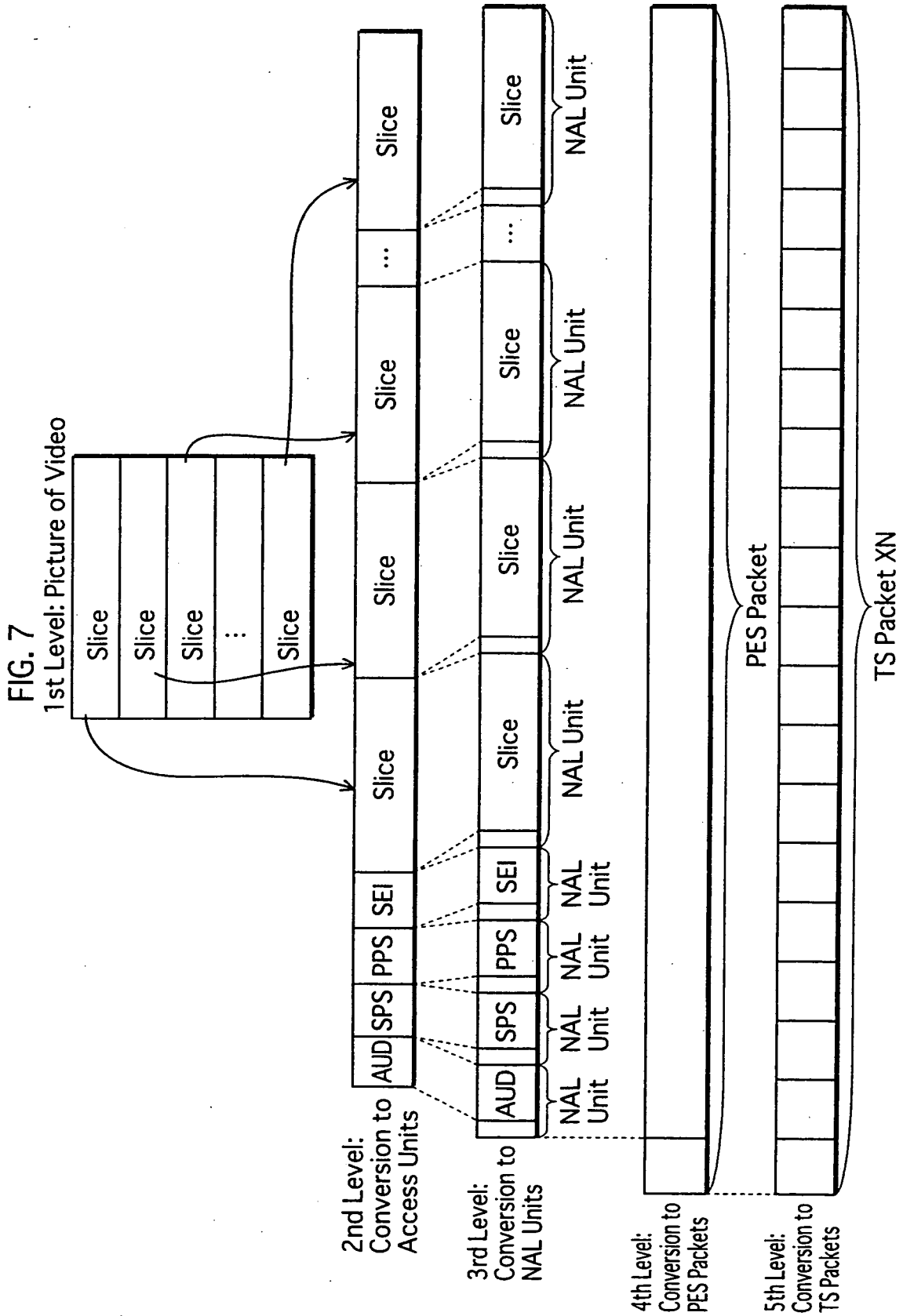
1st Level: Picture of Video
Slice
Slice
Slice
...
Slice
2nd Level: Conversion to Access Units
AUD
SPS
PPS
SEI
Slice
Slice
...
Slice
3rd Level: Conversion to NAL Units
NAL Unit
NAL Unit
NAL Unit
NAL Unit
NAL Unit
4th Level: Conversion to PES Packets
PES Packet
5th Level: Conversion to TS Packets
TS Packet XN

FIG. 8

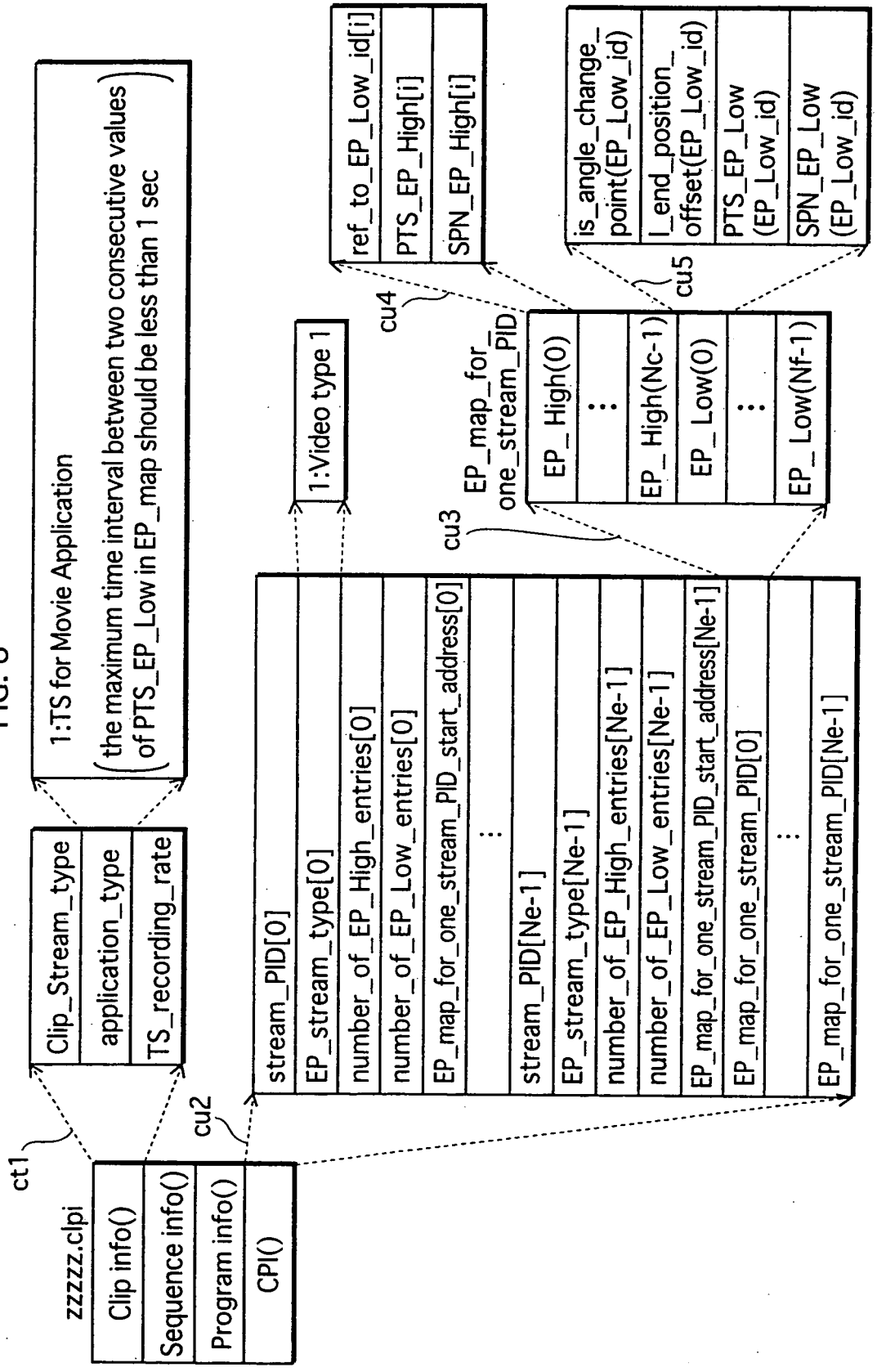
zzzzz.clpi
Clip info()
Sequence info()
Program info()
CPI()
ct1
cu2
Clip_Stream_type
application_type
TS_recording_rate
1:TS for Movie Application
(the maximum time interval between two consecutive values of PTS_EP_Low in EP_map should be less than 1 sec)
1:Video type 1
stream_PID[0]
EP_stream_type[0]
number_of_EP_High_entries[0]
number_of_EP_Low_entries[0]
EP_map_for_one_stream_PID_start_address[0]
stream_PID[Ne-1]
EP_stream_type[Ne-1]
number_of_EP_High_entries[Ne-1]
number_of_EP_Low_entries[Ne-1]
EP_map_for_one_stream_PID_start_address[Ne-1]
EP_map_for_one_stream_PID[0]
EP_map_for_one_stream_PID[Ne-1]
cu3
EP_map_for_one_stream_PID
EP_ High(0)
EP_ High(Nc-1)
EP_ Low(0)
EP_ Low(Nf-1)
cu4
ref_to_EP_Low_id[i]
PTS_EP_High[i]
SPN_EP_High[i]
cu5
is_angle_change_point(EP_Low_id)
I_end_position_offset(EP_Low_id)
PTS_EP_Low (EP_Low_id)
SPN_EP_Low ((EP_Low_id)

FIG. 9

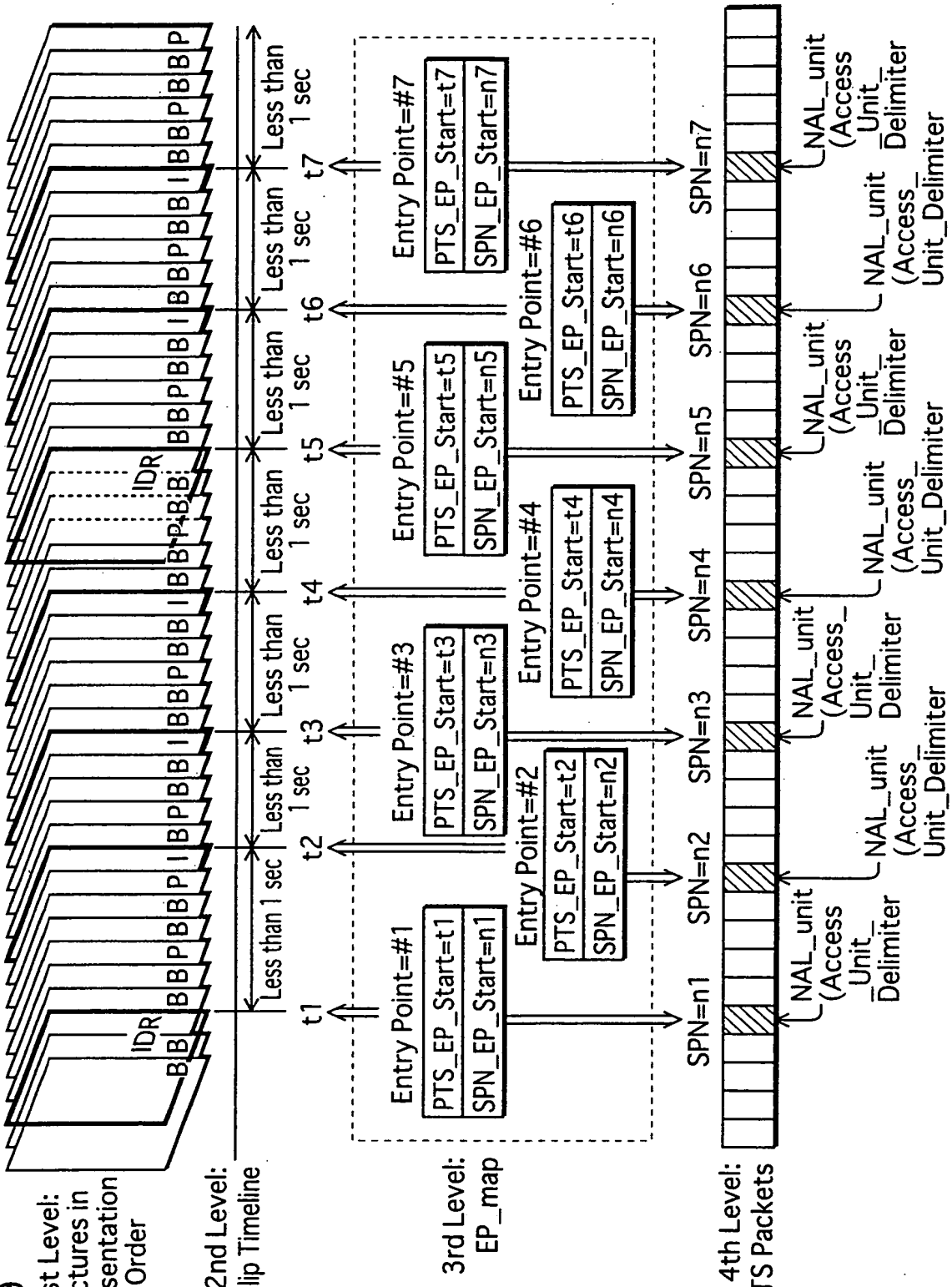
1st Level: Pictures in Presentation Order
2nd Level: MainClip Timeline
3rd Level: EP_map
4th Level: TS Packets
IDR
B B P B B P I B B P B B I B B P B B I B B P B B P
Less than 1 sec
t1
t2
t3
t4
t5
t6
t7
Entry Point=#1
PTS_EP_Start=t1
SPN_EP_Start=n1
Entry Point=#2
PTS_EP_Start=t2
SPN_EP_Start=n2
Entry Point=#3
PTS_EP_Start=t3
SPN_EP_Start=n3
Entry Point=#4
PTS_EP_Start=t4
SPN_EP_Start=n4
Entry Point=#5
PTS_EP_Start=t5
SPN_EP_Start=n5
Entry Point=#6
PTS_EP_Start=t6
SPN_EP_Start=n6
Entry Point=#7
PTS_EP_Start=t7
SPN_EP_Start=n7
SPN=n1
SPN=n2
SPN=n3
SPN=n4
SPN=n5
SPN=n6
SPN=n7
NAL_unit (Access_Unit_Delimiter
NAL_unit (Access_Unit_Delimiter

FIG. 10

EP_Low(0)~(Nf-1)

⋮	⋮	⋮
is_angle_change_point (i)=1	PTS_EP_Low LSBs of (i) = t1	SPN_EP_Low LSBs of (i) = n1
is_angle_change_point (i+1)=0	PTS_EP_Low LSBs of (i+1) = t2	SPN_EP_Low LSBs of (i+1) = n2
is_angle_change_point (i+2)=1	PTS_EP_Low LSBs of (i+2) = t3	SPN_EP_Low LSBs of (i+2) = n3
is_angle_change_point (i+3)=0	PTS_EP_Low LSBs of (i+3) = t4	SPN_EP_Low LSBs of (i+3) = n4
⋮	⋮	⋮
is_angle_change_point (j)=0	PTS_EP_Low (j)	SPN_EP_Low (j)
is_angle_change_point (j+1)=0	PTS_EP_Low (j+1)	SPN_EP_Low (j+1)
is_angle_change_point (j+2)=0	PTS_EP_Low (j+2)	SPN_EP_Low (j+2)
⋮	⋮	⋮
is_angle_change_point (k)=0	PTS_EP_Low (k)	SPN_EP_Low (k)
is_angle_change_point (k+1)=0	PTS_EP_Low (k+1)	SPN_EP_Low (k+1)
is_angle_change_point (k+2)=0	PTS_EP_Low (k+2)	SPN_EP_Low (k+2)
⋮	⋮	⋮

EP_High(0)~(Nc-1)

⋮	⋮	⋮
Reference Value to ref_to _EP_Low_id(A) = EP_Low(i)	Common MSBs of PTS_EP _High(A) = t1, t2, t3, t4	Common MSBs of SPN_EP _High(A) = n1, n2, n3, n4
ref_to_EP _Low_id (A+1)	PTS_EP_ High(A+1)	SPN_EP_ High_(A+1)
ref_to_EP _Low_id (A+2)	PTS_EP_ High(A+2)	SPN_EP_ High_(A+2)
⋮	⋮	⋮

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FIG. 11

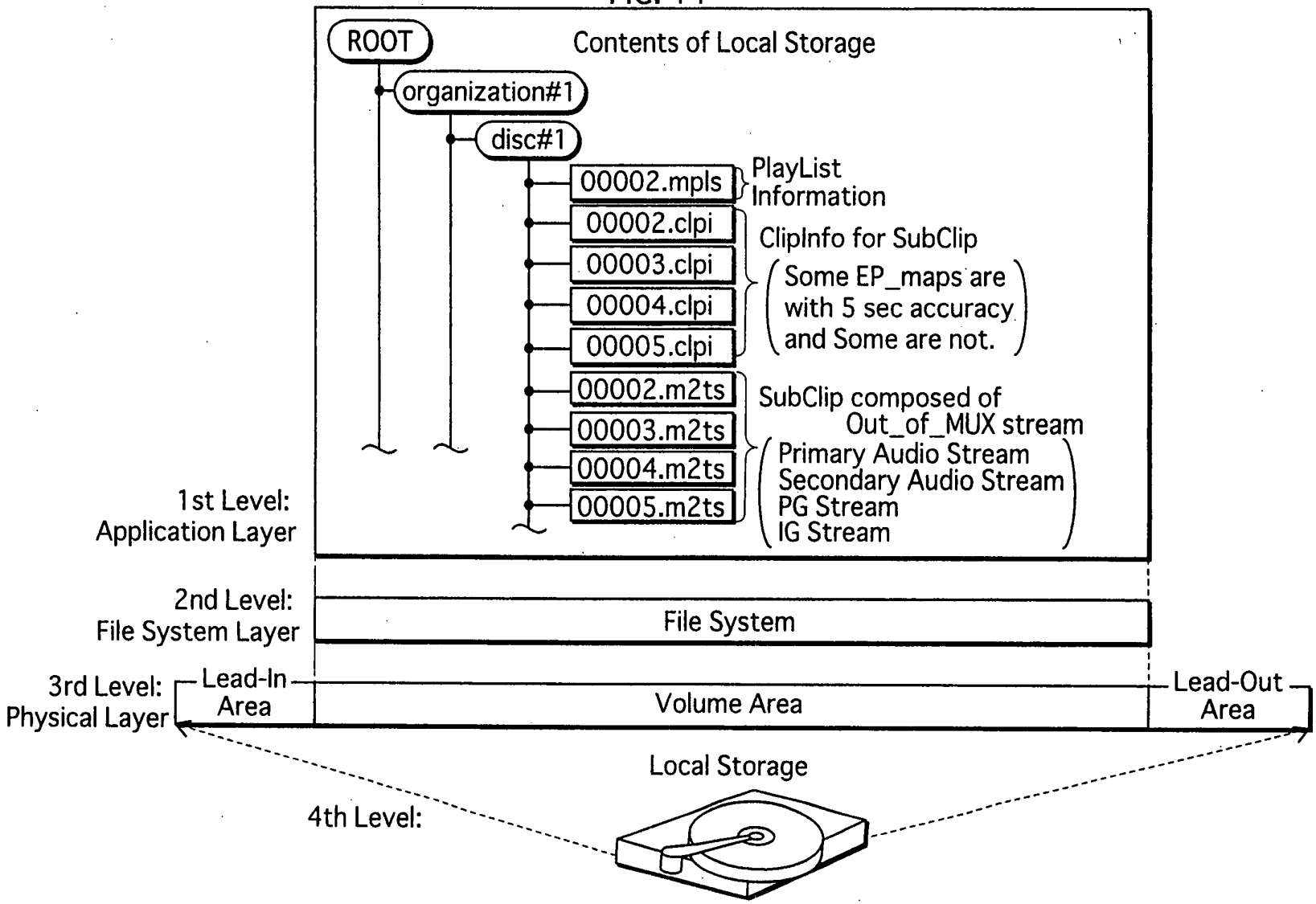

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FIG. 12

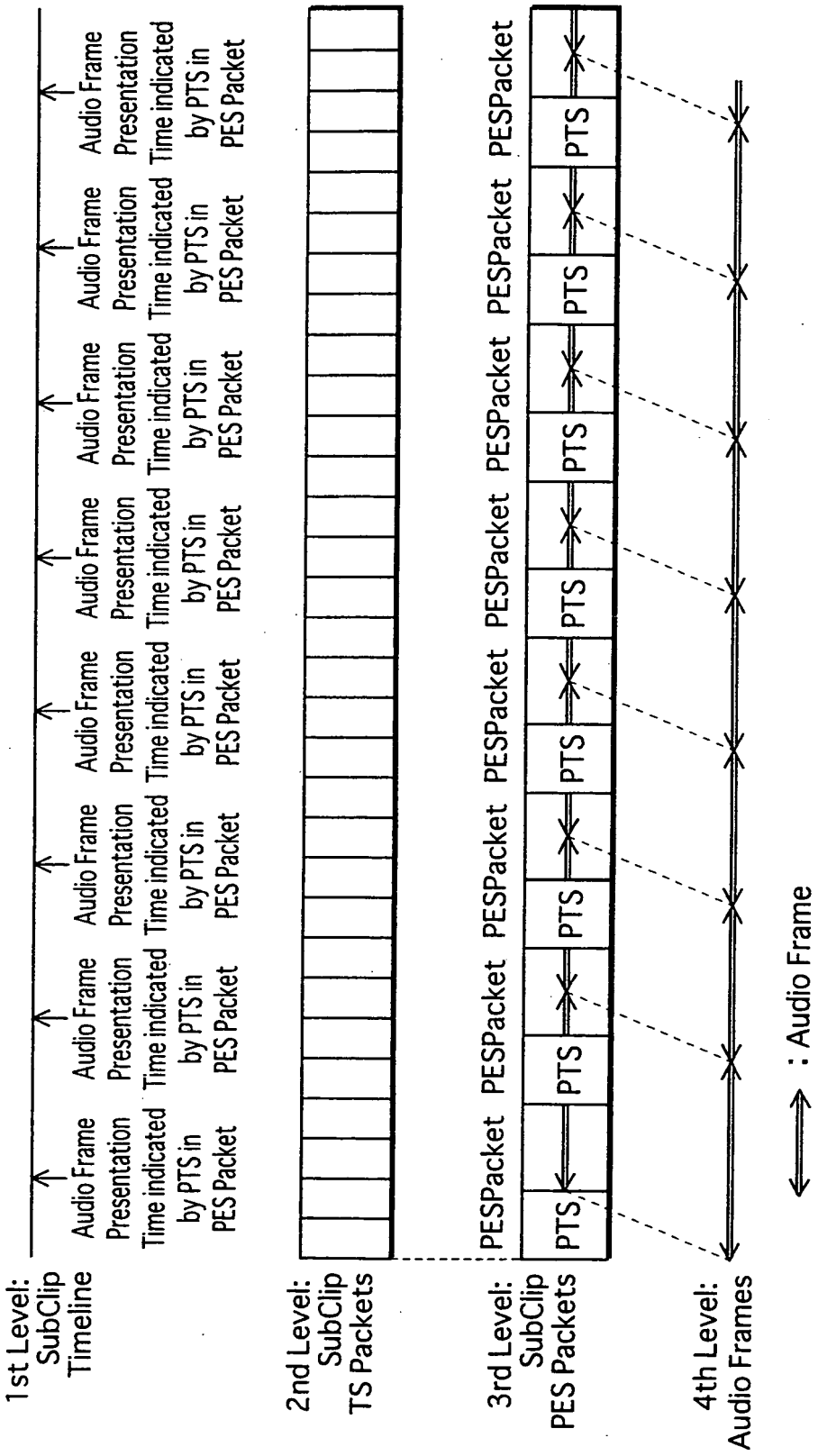
1st Level: SubClip Timeline
Audio Frame Presentation Time indicated by PTS in PES Packet
2nd Level: SubClip TS Packets
3rd Level: SubClip PES Packets
PESPacket
PTS
4th Level: Audio Frames
: Audio Frame

FIG. 13

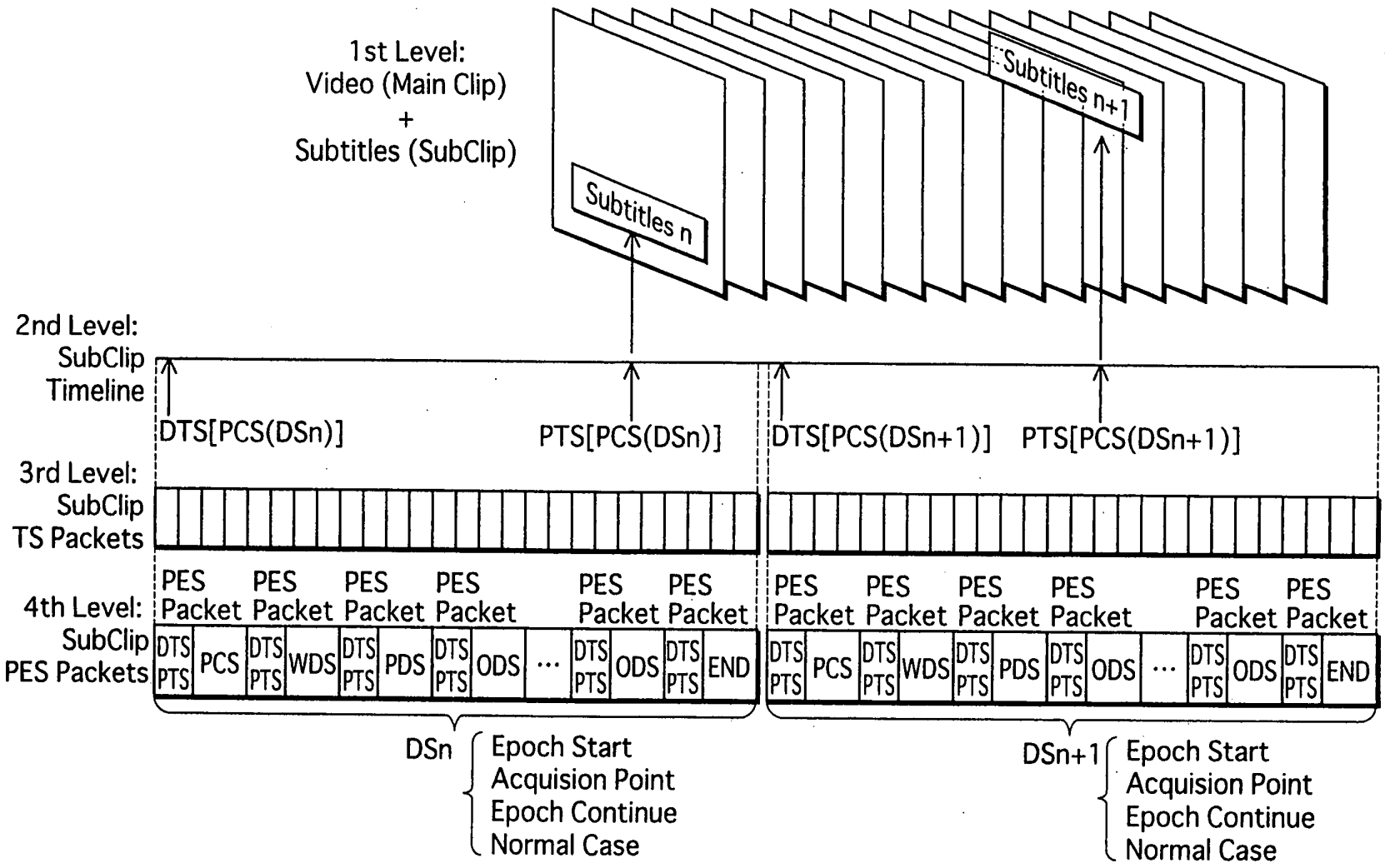

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FIG. 14

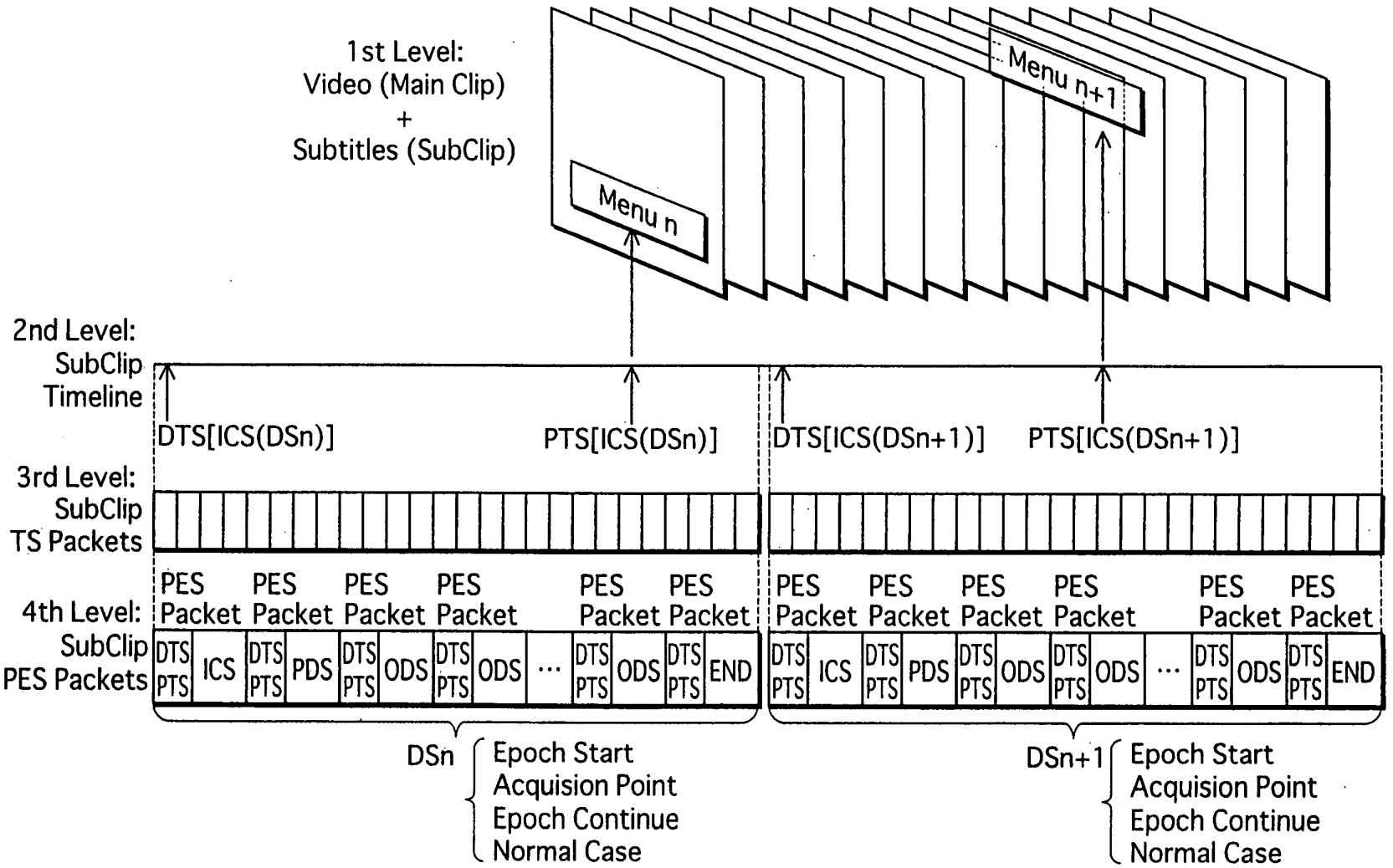

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FIG. 15

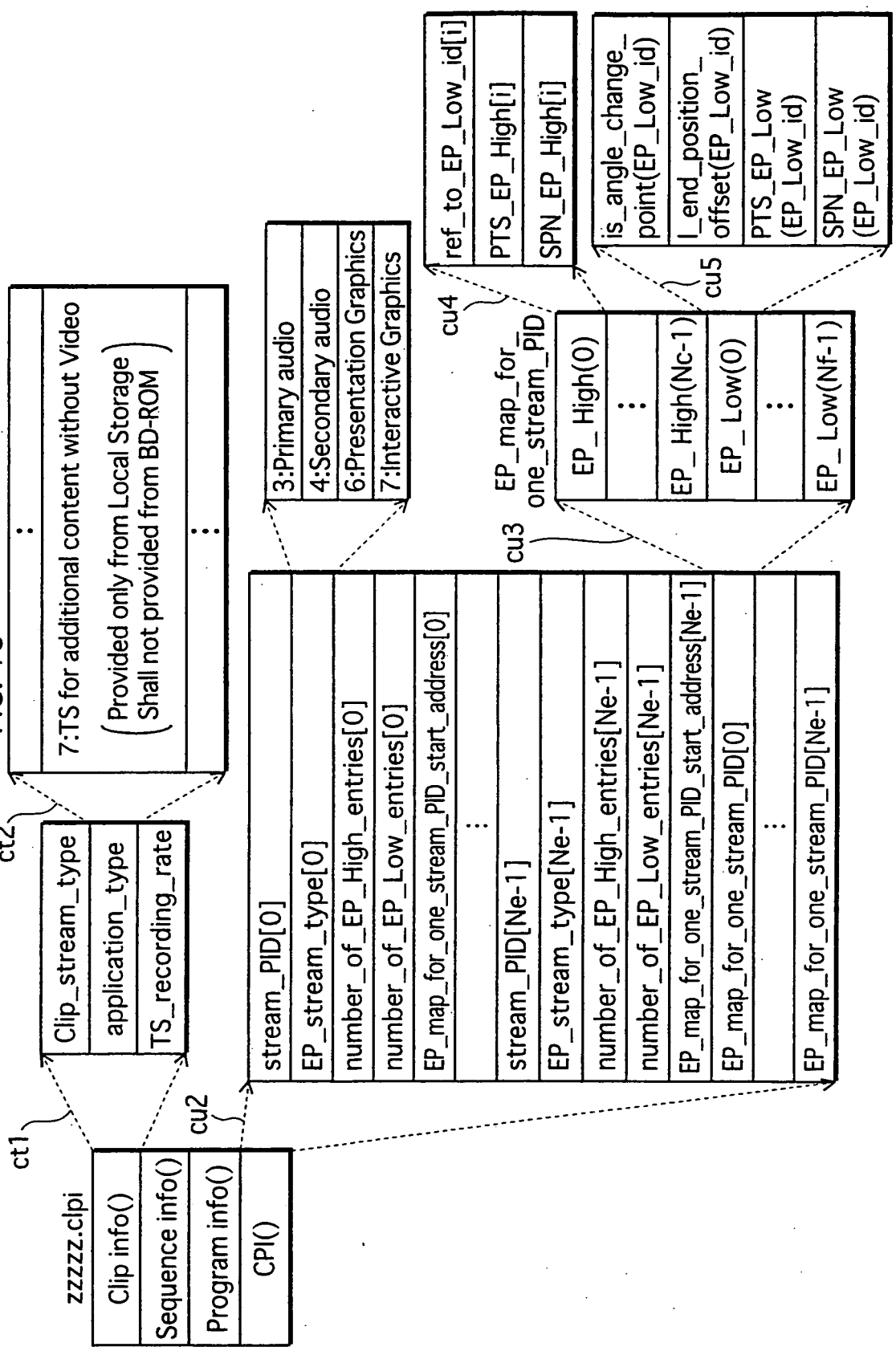
zzzzz.clpi
Clip info()
Sequence info()
Program info()
CPI()
ct1
cu2
ct2
Clip_stream_type
application_type
TS_recording_rate
7:TS for additional content without Video
(Provided only from Local Storage
Shall not provided from BD-ROM)
stream_PID[0]
EP_stream_type[0]
number_of_EP_High_entries[0]
number_of_EP_Low_entries[0]
EP_map_for_one_stream_PID_start_address[0]
stream_PID[Ne-1]
EP_stream_type[Ne-1]
number_of_EP_High_entries[Ne-1]
number_of_EP_Low_entries[Ne-1]
EP_map_for_one_stream_PID_start_address[Ne-1]
EP_map_for_one_stream_PID[0]
EP_map_for_one_stream_PID[Ne-1]
3:Primary audio
4:Secondary audio
6:Presentation Graphics
7:Interactive Graphics
cu3
EP_map_for_
one_stream_PID
EP_ High(0)
EP_ High(Nc-1)
EP_ Low(0)
EP_ Low(Nf-1)
cu4
ref_to_EP_Low_id[i]
PTS_EP_High[i]
SPN_EP_High[i]
cu5
is_angle_change_
point(EP_Low_id)
I_end_position_
offset(EP_Low_id)
PTS_EP_Low
(EP_Low_id)
SPN_EP_Low
(EP_Low_id)

FIG. 16

application_type is set to 7 and EP_stream_type(k) is set to 3(Primary audio) or 4(Secondary audio),the maximum interval between two consecutive EP_Low entries in EP_map Shall be 256kByte or five second,whichever shorter

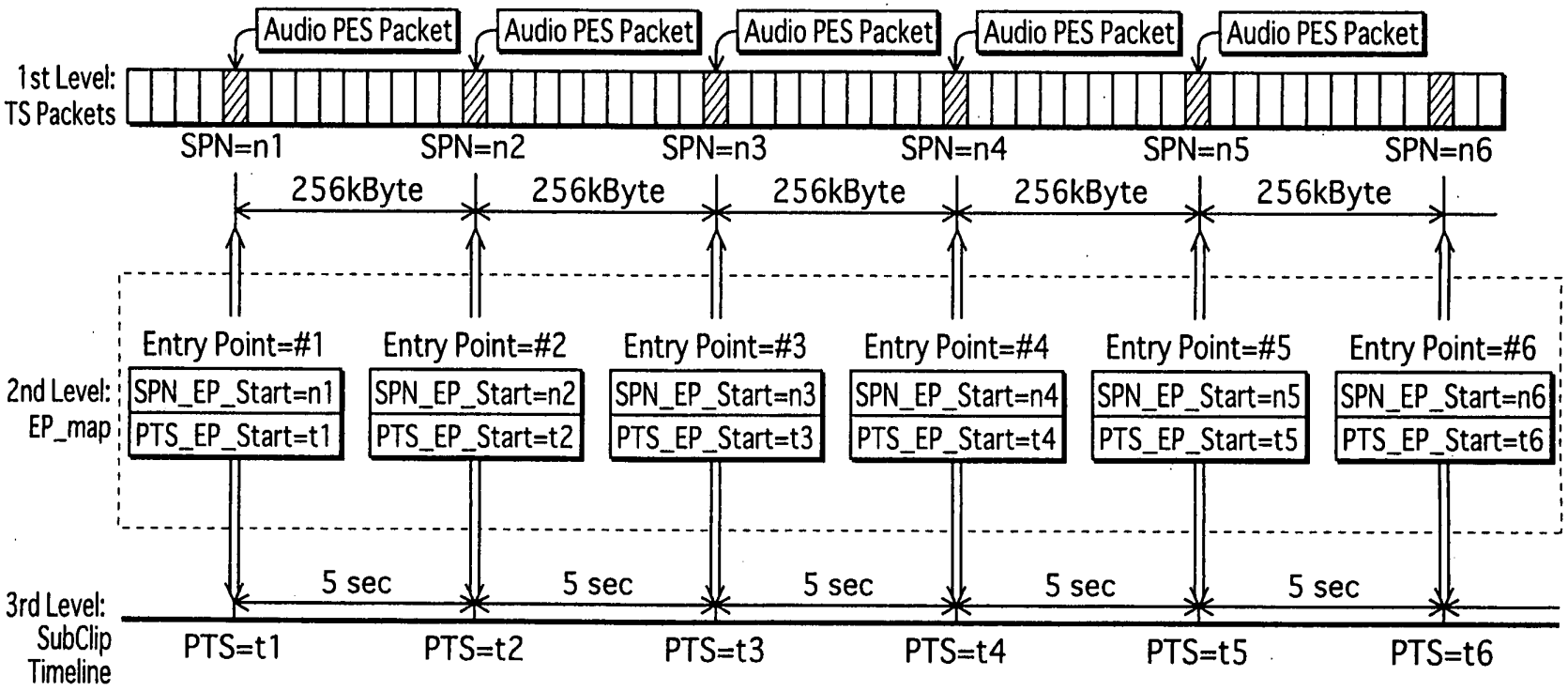

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FIG. 17

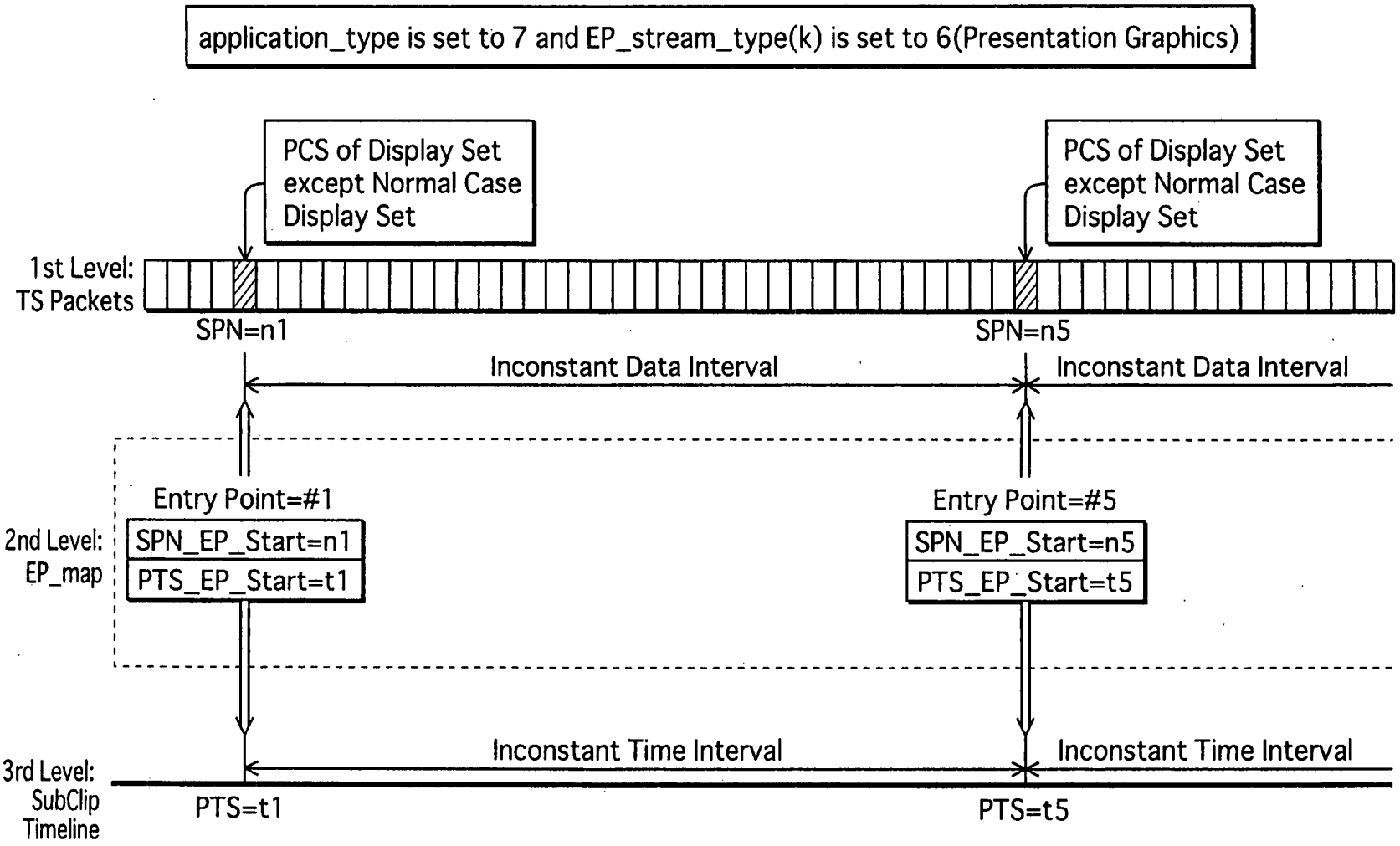

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FIG. 18

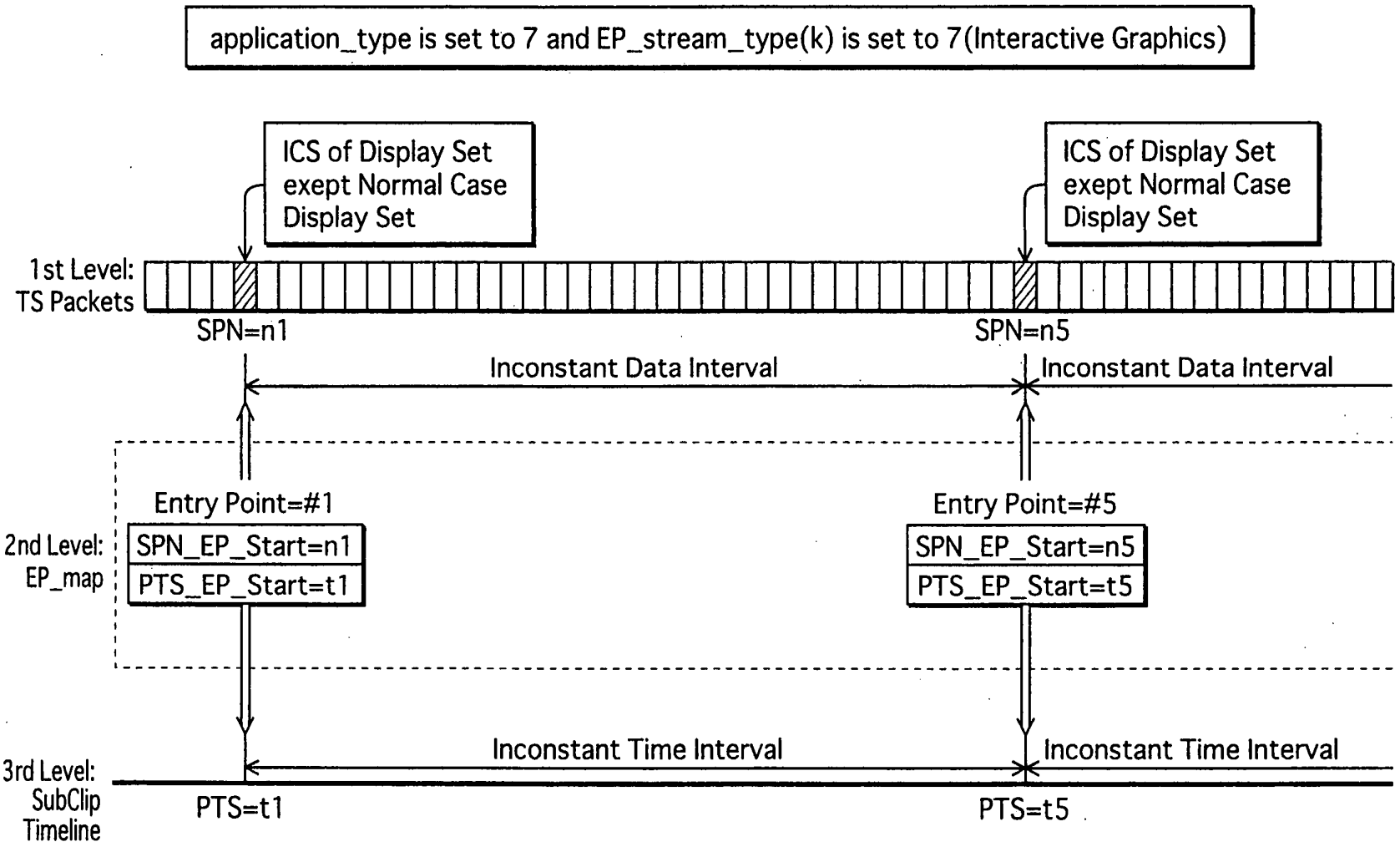

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FIG. 19

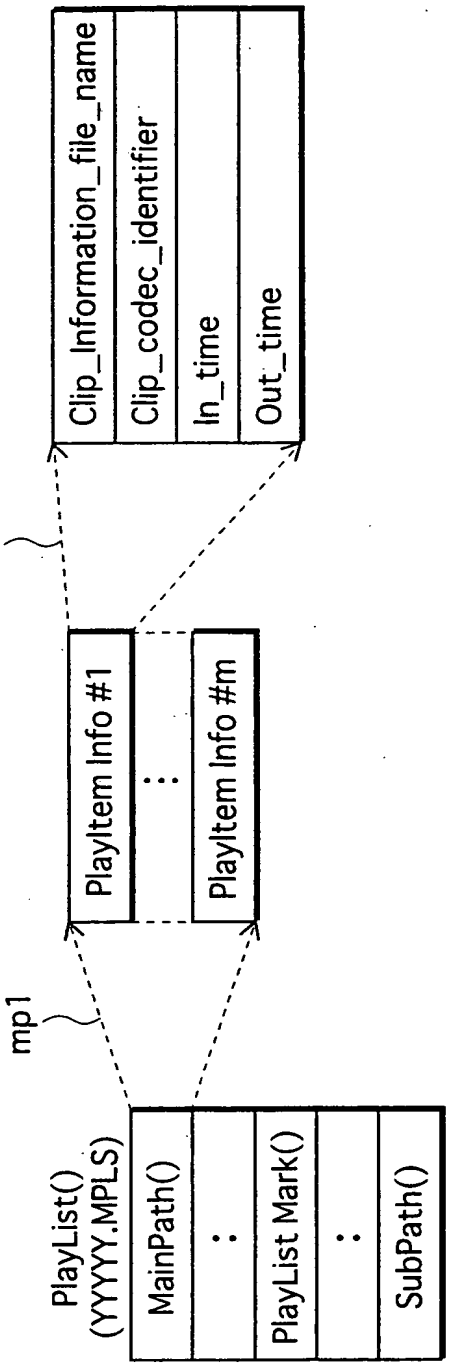
PlayList()
(YYYYY.MPLS)
MainPath()
PlayList Mark()
SubPath()
mp1
PlayItem Info #1
PlayItem Info #m
hs1
Clip_Information_file_name
Clip_codec_identifier
In_time
Out_time

FIG. 20

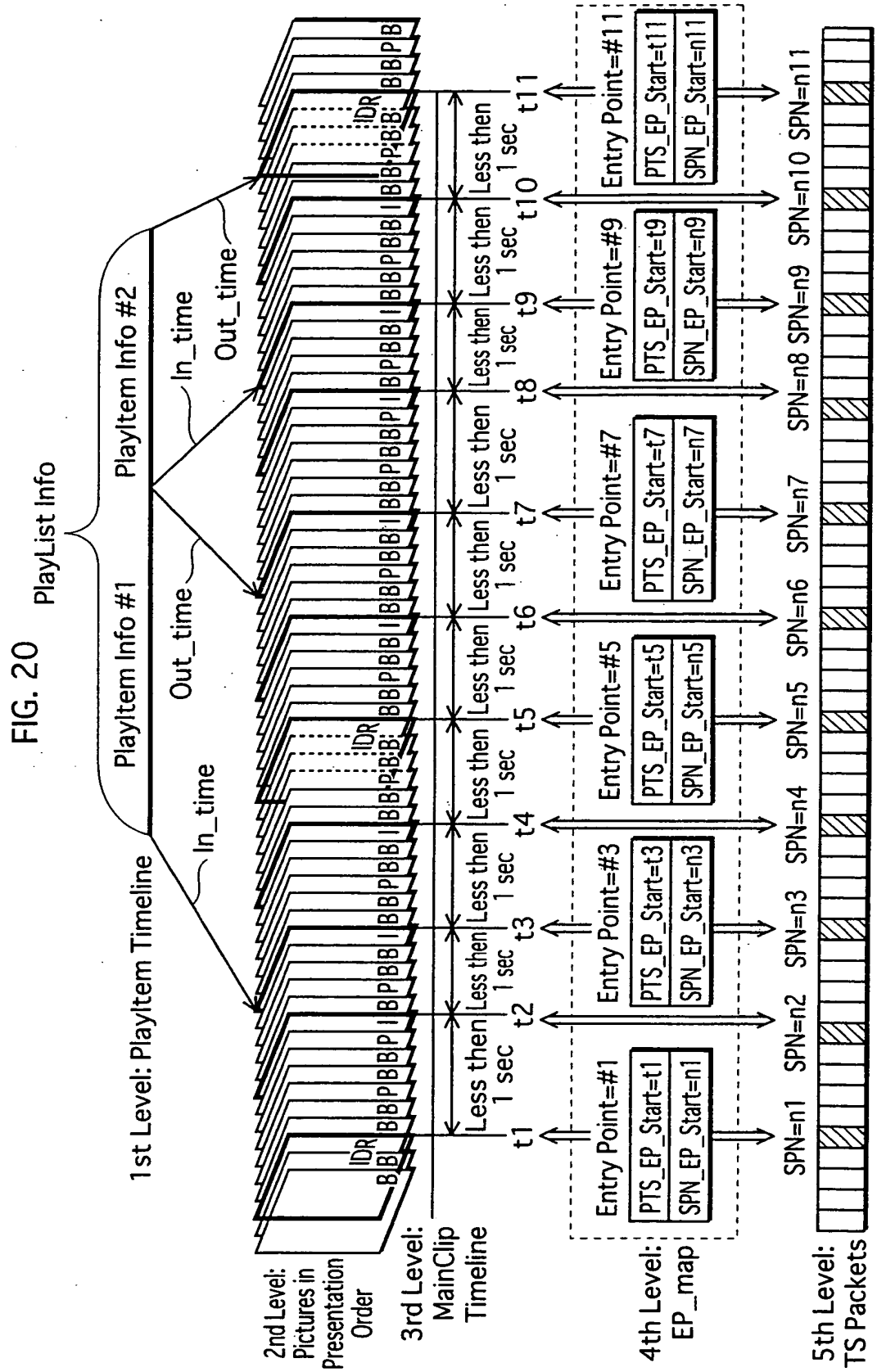
PlayList Info
PlayItem Info #1
PlayItem Info #2
1st Level: PlayItem Timeline
In_time
Out_time
In_time
Out_time
2nd Level: Pictures in Presentation Order
3rd Level: MainClip Timeline
Less then 1 sec
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
4th Level: EP_map
Entry Point=#1
PTS_EP_Start=t1
SPN_EP_Start=n1
Entry Point=#3
PTS_EP_Start=t3
SPN_EP_Start=n3
Entry Point=#5
PTS_EP_Start=t5
SPN_EP_Start=n5
Entry Point=#7
PTS_EP_Start=t7
SPN_EP_Start=n7
Entry Point=#9
PTS_EP_Start=t9
SPN_EP_Start=n9
Entry Point=#11
PTS_EP_Start=t11
SPN_EP_Start=n11
5th Level: TS Packets
SPN=n1
SPN=n2
SPN=n3
SPN=n4
SPN=n5
SPN=n6
SPN=n7
SPN=n8
SPN=n9
SPN=n10
SPN=n11

FIG. 21

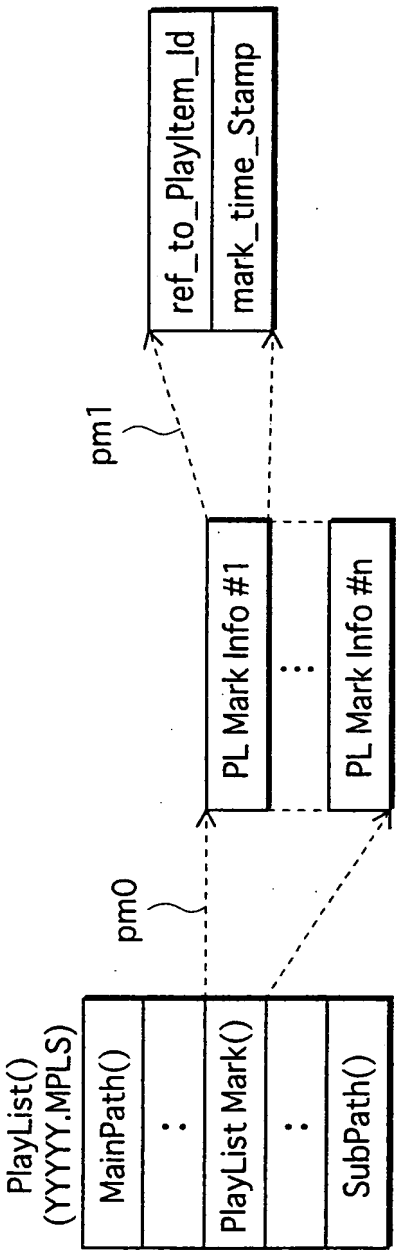
PlayList()
(YYYY.MPLS)
MainPath()
PlayList Mark()
SubPath()
pm0
pm1
PL Mark Info #1
PL Mark Info #n
ref_to_PlayItem_Id
mark_time_Stamp

FIG. 22

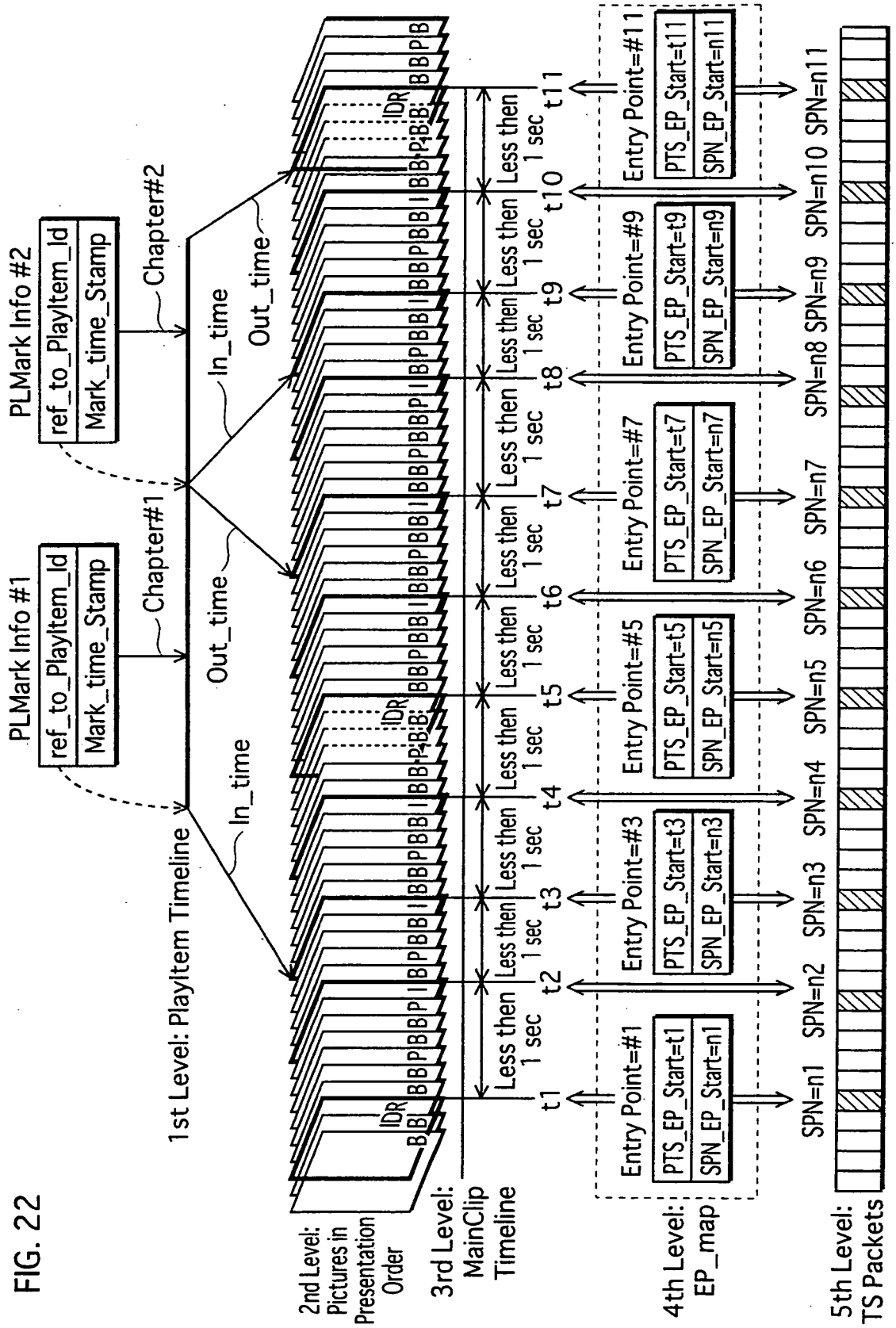
PLMark Info #1
ref_to_PlayItem_Id
Mark_time_Stamp
PLMark Info #2
ref_to_PlayItem_Id
Mark_time_Stamp
Chapter#1
Chapter#2
In_time
Out_time
In_time
Out_time
1st Level: PlayItem Timeline
2nd Level: Pictures in Presentation Order
3rd Level: MainClip Timeline
4th Level: EP_map
5th Level: TS Packets
Less then 1 sec
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
Entry Point=#1
Entry Point=#3
Entry Point=#5
Entry Point=#7
Entry Point=#9
Entry Point=#11
PTS_EP_Start=t1
SPN_EP_Start=n1
PTS_EP_Start=t3
SPN_EP_Start=n3
PTS_EP_Start=t5
SPN_EP_Start=n5
PTS_EP_Start=t7
SPN_EP_Start=n7
PTS_EP_Start=t9
SPN_EP_Start=n9
PTS_EP_Start=t11
SPN_EP_Start=n11
SPN=n1
SPN=n2
SPN=n3
SPN=n4
SPN=n5
SPN=n6
SPN=n7
SPN=n8
SPN=n9
SPN=n10
SPN=n11

FIG. 23

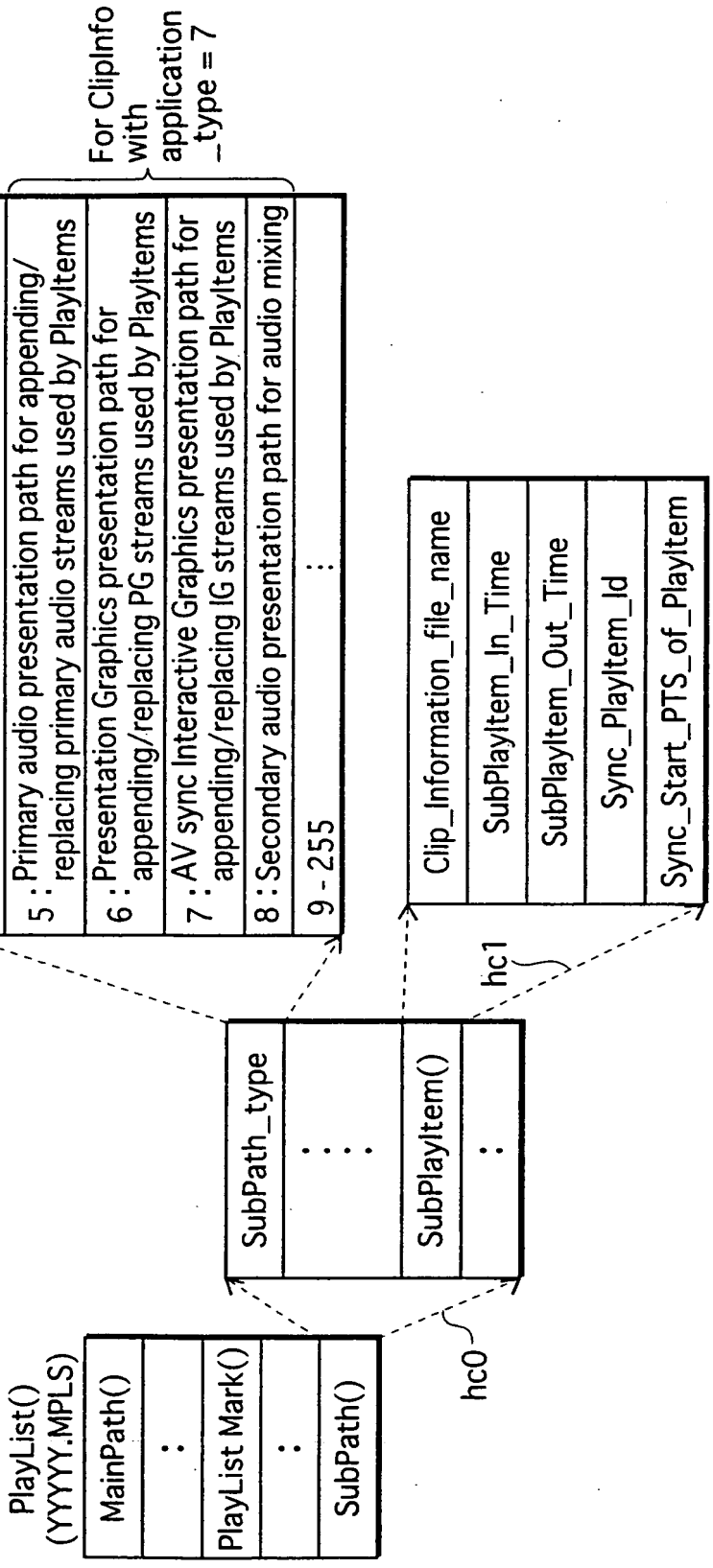
PlayList()
(YYYYY.MPLS)
MainPath()
PlayList Mark()
SubPath()
hc0
SubPath_type
SubPlayItem()
hc1
Clip_Information_file_name
SubPlayItem_In_Time
SubPlayItem_Out_Time
Sync_PlayItem_Id
Sync_Start_PTS_of_PlayItem
0 - 4
5 : Primary audio presentation path for appending/ replacing primary audio streams used by PlayItems
6 : Presentation Graphics presentation path for appending/replacing PG streams used by PlayItems
7 : AV sync Interactive Graphics presentation path for appending/replacing IG streams used by PlayItems
8 : Secondary audio presentation path for audio mixing
9 - 255
For ClipInfo with application _type = 7

FIG. 24

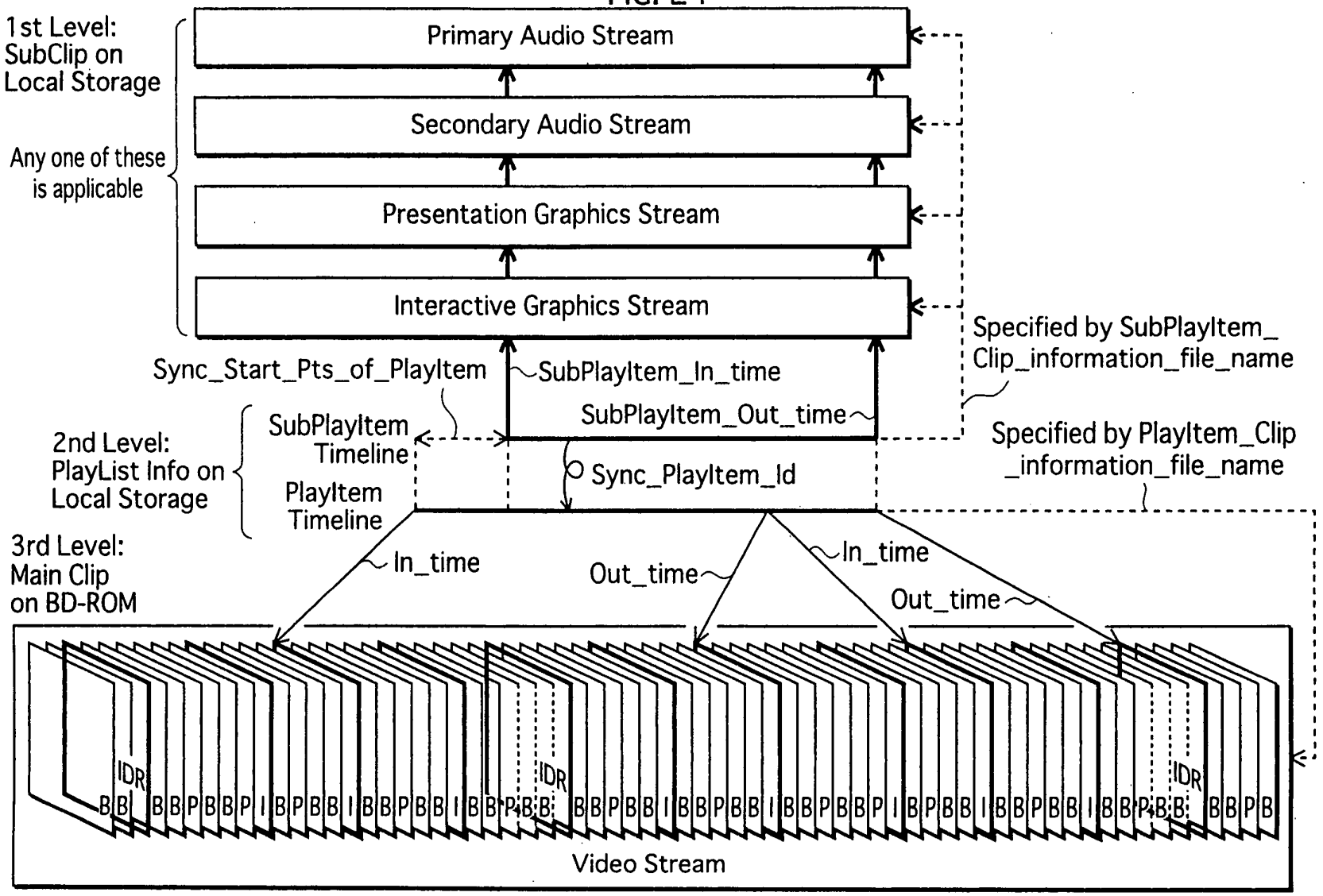

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FIG. 25

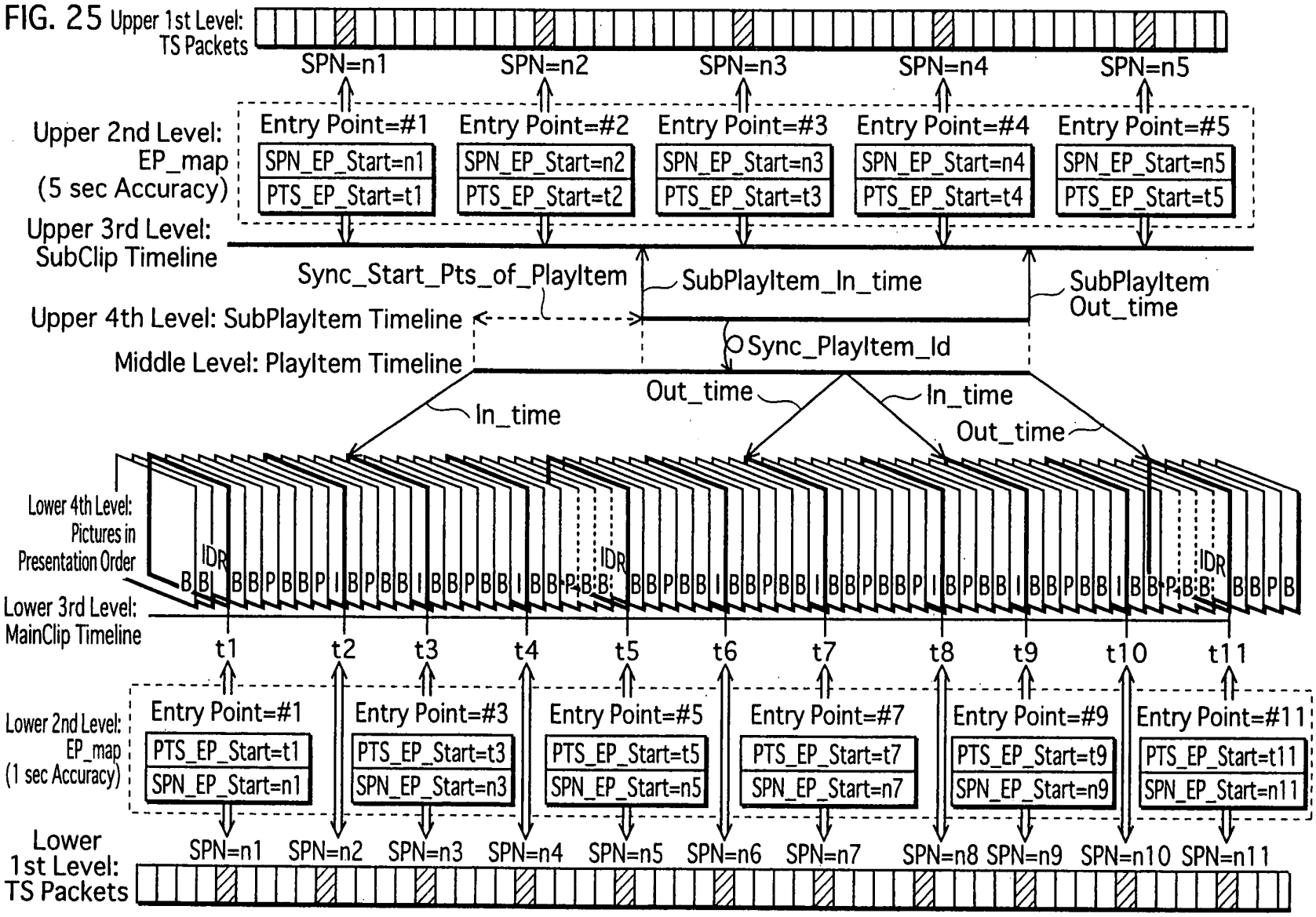

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FIG. 26

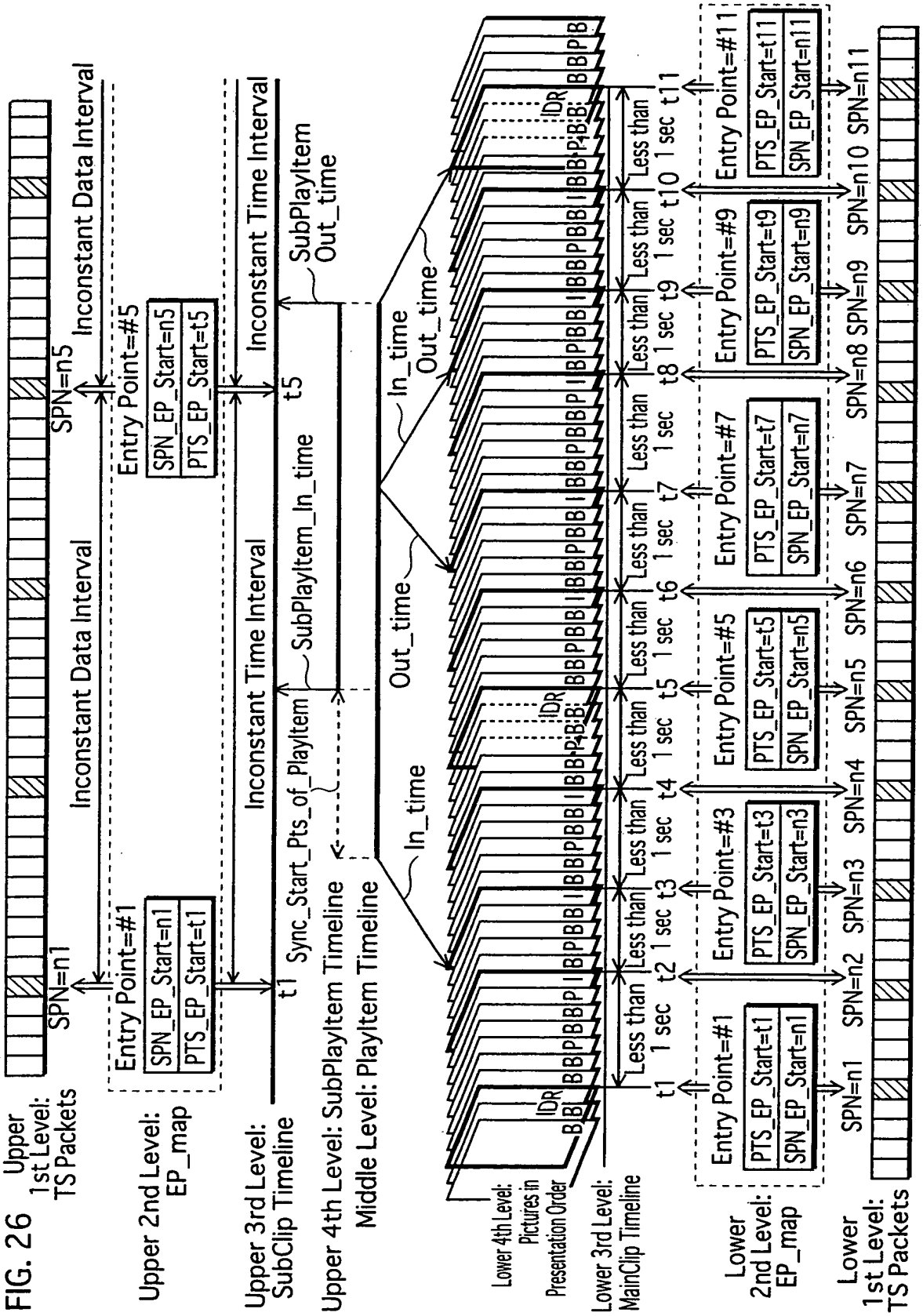
Upper 1st Level: TS Packets
SPN=n1
Inconstant Data Interval
SPN=n5
Inconstant Data Interval
Upper 2nd Level: EP_map
Entry Point=#1
SPN_EP_Start=n1
PTS_EP_Start=t1
Entry Point=#5
SPN_EP_Start=n5
PTS_EP_Start=t5
Upper 3rd Level: SubClip Timeline
t1
Sync_Start_Pts_of_PlayItem
Inconstant Time Interval
Inconstant Time Interval
t5
SubPlayItem_In_time
SubPlayItem Out_time
Upper 4th Level: SubPlayItem Timeline
Middle Level: PlayItem Timeline
In_time
Out_time
In_time
Out_time
Lower 4th Level: Pictures in Presentation Order
IDR
B B P B B P I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B I B B P B B
Lower 3rd Level: MainClip Timeline
Less than 1 sec
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
Lower 2nd Level: EP_map
Entry Point=#1
PTS_EP_Start=t1
SPN_EP_Start=n1
Entry Point=#3
PTS_EP_Start=t3
SPN_EP_Start=n3
Entry Point=#5
PTS_EP_Start=t5
SPN_EP_Start=n5
Entry Point=#7
PTS_EP_Start=t7
SPN_EP_Start=n7
Entry Point=#9
PTS_EP_Start=t9
SPN_EP_Start=n9
Entry Point=#11
PTS_EP_Start=t11
SPN_EP_Start=n11
Lower 1st Level: TS Packets
SPN=n1
SPN=n2
SPN=n3
SPN=n4
SPN=n5
SPN=n6
SPN=n7
SPN=n8
SPN=n9
SPN=n10
SPN=n11

FIG. 27

SubPlayItem. SubPath_type	Clip_Info. Application_type	CPI.EP_Stream_type
5:Primary audio presentation path for appending/replacing primary audio streams used by PlayItems	7:TS for additional Content Without Video	3:Primary audio
6:Presentation Graphics presentation path for appending/ replacing PG streams used by PlayItems		6:Presentation Graphics
7:AV sync Interactive Graphics presentation path for appending/replacing IG streams used by PlayItems		7:Interactive Graphics
8:Secondary audio presentation path for audio mixing		4:Secondary Audio

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FIG. 28

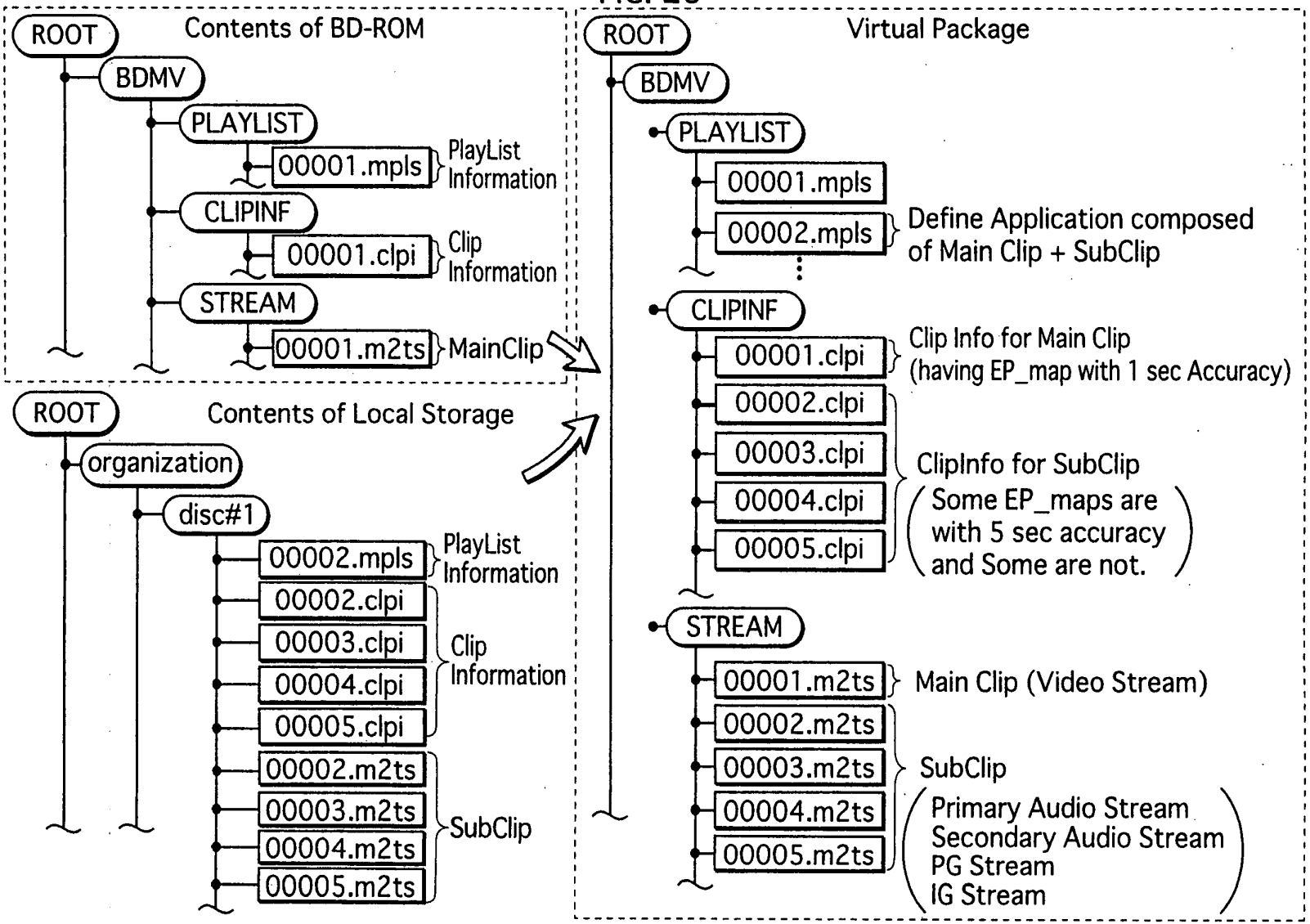

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FIG. 29

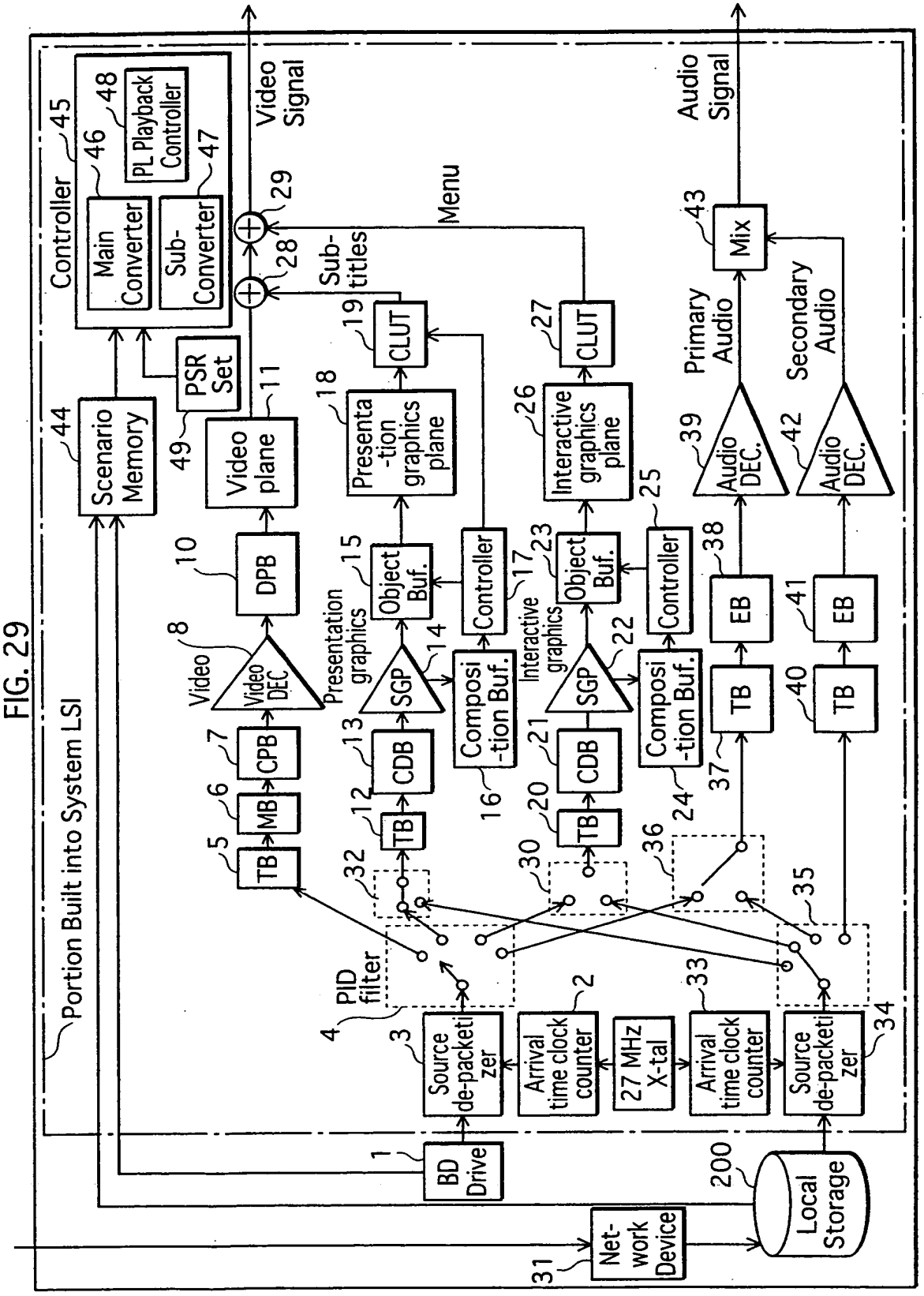
Portion Built into System LSI
Controller
Main Converter
Sub-Converter
PL Playback Controller
Video Signal
Audio Signal
Menu
Sub-titles
Scenario Memory
PSR Set
Video plane
DPB
Video DEC
Presentation graphics
Object Buf.
Controller
SGP
Composi-tion Buf.
CLUT
Interactive graphics plane
Primary Audio
Secondary Audio
Audio DEC.
Mix
EB
TB
MB
CPB
CDB
PID filter
Source de-packeti zer
Arrival time clock counter
27 MHz X-tal
BD Drive
Local Storage
Net-work Device

FIG. 30

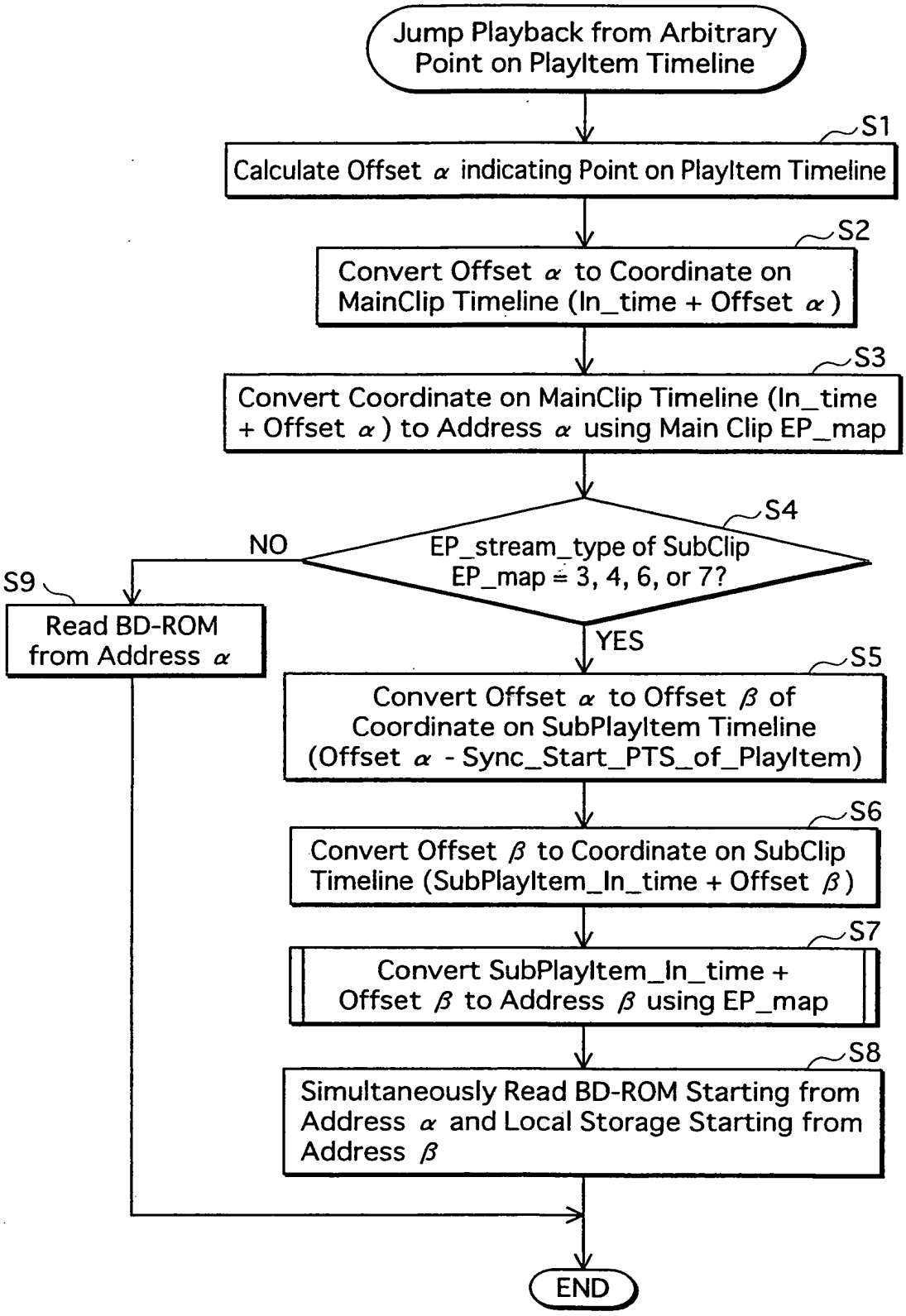
Jump Playback from Arbitrary Point on PlayItem Timeline
S1
Calculate Offset α indicating Point on PlayItem Timeline
S2
Convert Offset α to Coordinate on MainClip Timeline (In_time + Offset α)
S3
Convert Coordinate on MainClip Timeline (In_time + Offset α) to Address α using Main Clip EP_map
S4
EP_stream_type of SubClip EP_map = 3, 4, 6, or 7?
NO
S9
Read BD-ROM from Address α
YES
S5
Convert Offset α to Offset β of Coordinate on SubPlayItem Timeline (Offset α - Sync_Start_PTS_of_PlayItem)
S6
Convert Offset β to Coordinate on SubClip Timeline (SubPlayItem_In_time + Offset β)
S7
Convert SubPlayItem_In_time + Offset β to Address β using EP_map
S8
Simultaneously Read BD-ROM Starting from Address α and Local Storage Starting from Address β
END

FIG. 31

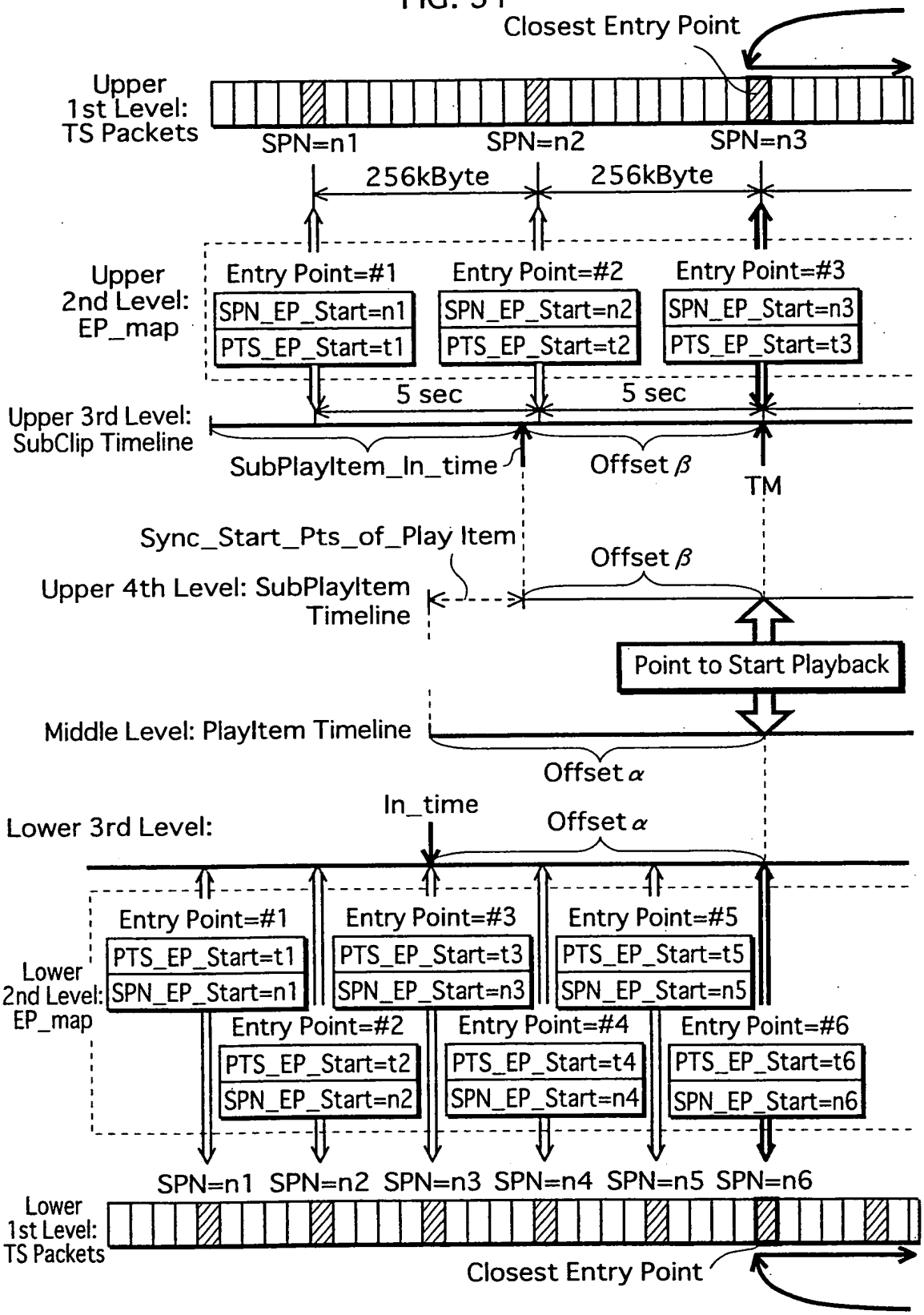
Closest Entry Point
Upper 1st Level: TS Packets
SPN=n1
SPN=n2
SPN=n3
256kByte
256kByte
Upper 2nd Level: EP_map
Entry Point=#1
SPN_EP_Start=n1
PTS_EP_Start=t1
Entry Point=#2
SPN_EP_Start=n2
PTS_EP_Start=t2
Entry Point=#3
SPN_EP_Start=n3
PTS_EP_Start=t3
5 sec
5 sec
Upper 3rd Level: SubClip Timeline
SubPlayItem_In_time
Offset β
TM
Sync_Start_Pts_of_Play Item
Offset β
Upper 4th Level: SubPlayItem Timeline
Point to Start Playback
Middle Level: PlayItem Timeline
Offset α
In_time
Offset α
Lower 3rd Level:
Lower 2nd Level: EP_map
Entry Point=#1
PTS_EP_Start=t1
SPN_EP_Start=n1
Entry Point=#3
PTS_EP_Start=t3
SPN_EP_Start=n3
Entry Point=#5
PTS_EP_Start=t5
SPN_EP_Start=n5
Entry Point=#2
PTS_EP_Start=t2
SPN_EP_Start=n2
Entry Point=#4
PTS_EP_Start=t4
SPN_EP_Start=n4
Entry Point=#6
PTS_EP_Start=t6
SPN_EP_Start=n6
SPN=n1 SPN=n2 SPN=n3 SPN=n4 SPN=n5 SPN=n6
Lower 1st Level: TS Packets
Closest Entry Point

FIG. 32

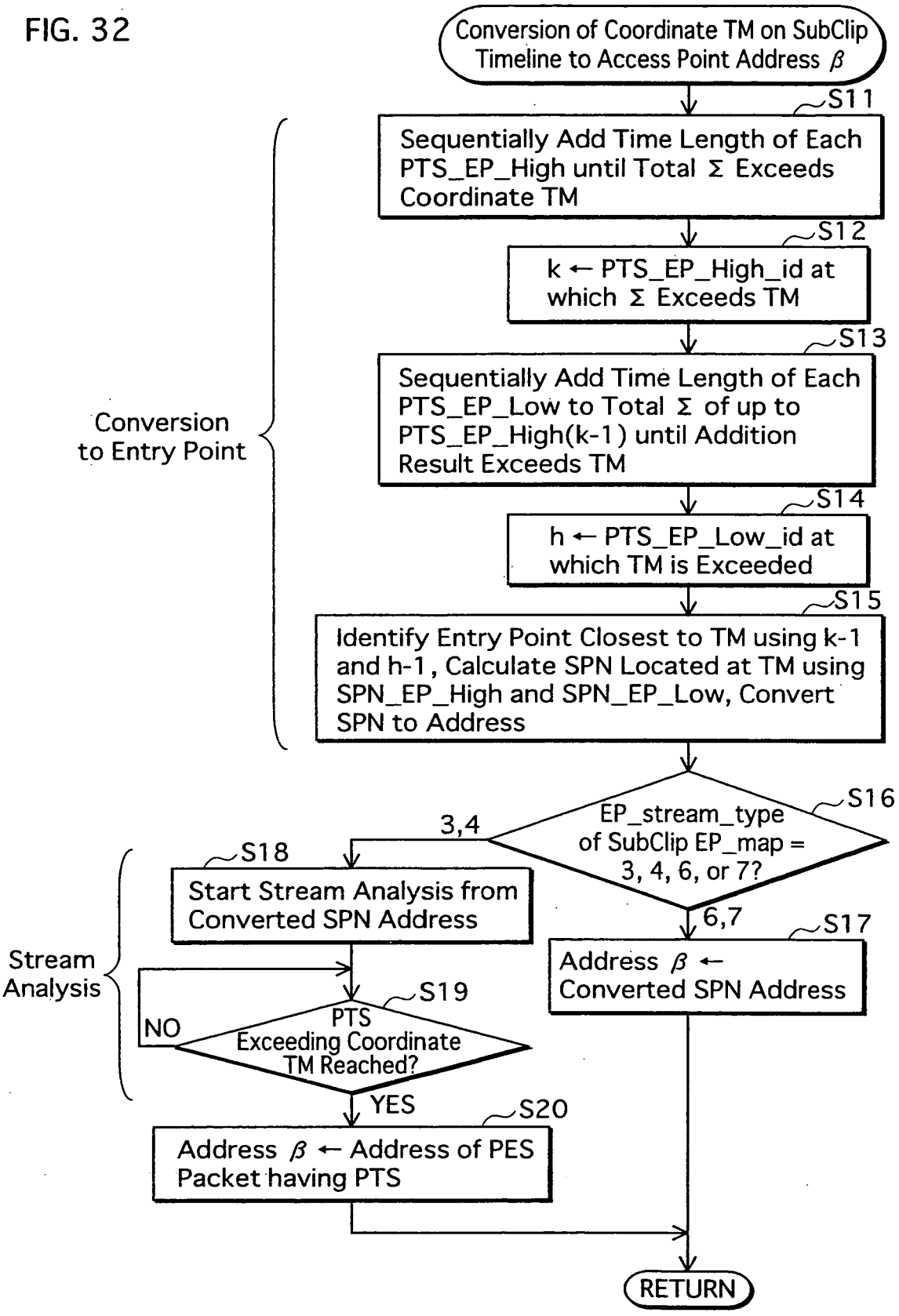
Conversion of Coordinate TM on SubClip Timeline to Access Point Address β
S11
Sequentially Add Time Length of Each PTS_EP_High until Total Σ Exceeds Coordinate TM
S12
k ← PTS_EP_High_id at which Σ Exceeds TM
S13
Sequentially Add Time Length of Each PTS_EP_Low to Total Σ of up to PTS_EP_High(k-1) until Addition Result Exceeds TM
S14
h ← PTS_EP_Low_id at which TM is Exceeded
S15
Identify Entry Point Closest to TM using k-1 and h-1, Calculate SPN Located at TM using SPN_EP_High and SPN_EP_Low, Convert SPN to Address
Conversion to Entry Point
S16
EP_stream_type of SubClip EP_map = 3, 4, 6, or 7?
3,4
6,7
S17
Address β ← Converted SPN Address
S18
Start Stream Analysis from Converted SPN Address
S19
PTS Exceeding Coordinate TM Reached?
NO
YES
S20
Address β ← Address of PES Packet having PTS
Stream Analysis
RETURN

FIG. 33

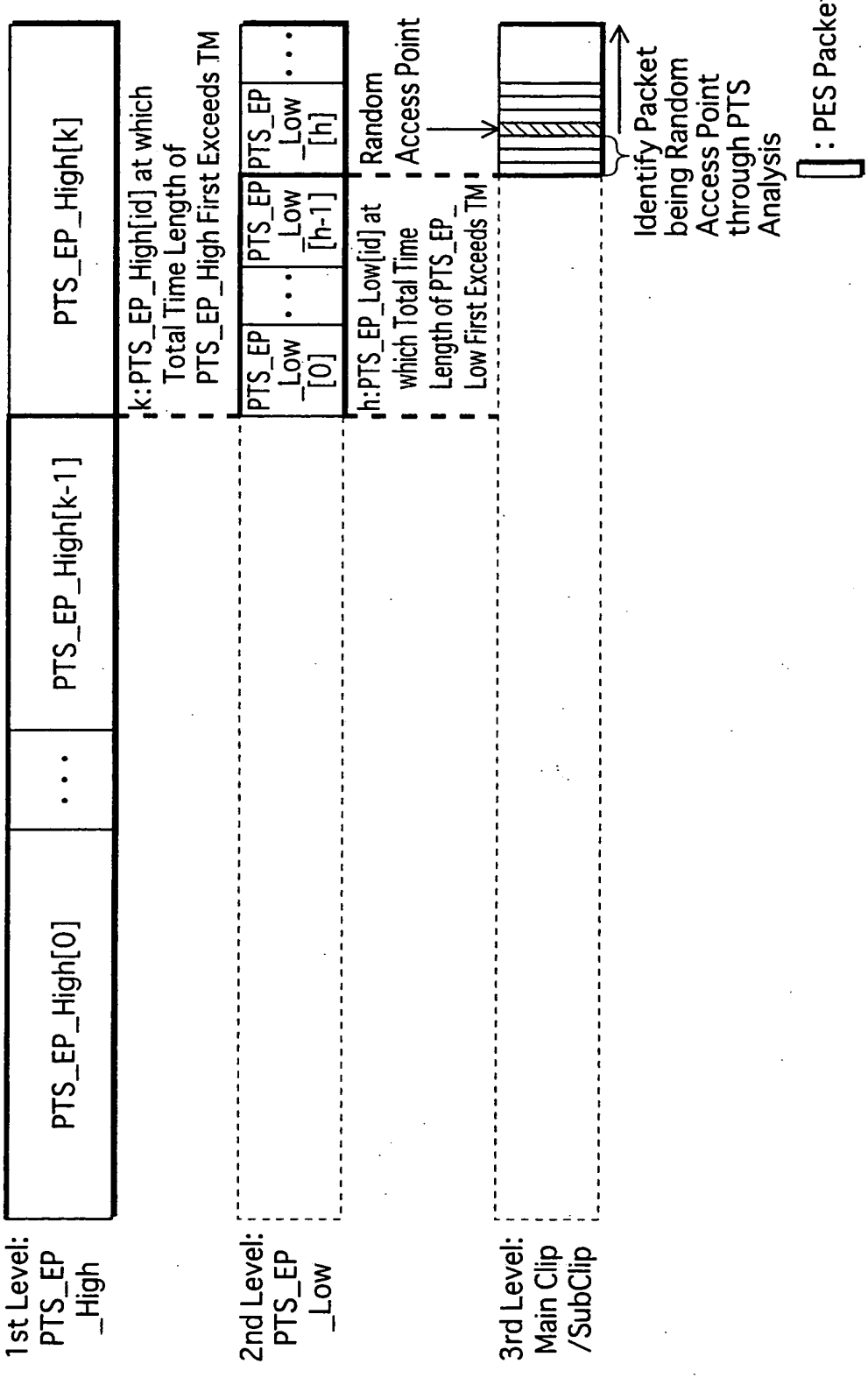
1st Level: PTS_EP _High
PTS_EP_High[0]
. . .
PTS_EP_High[k-1]
PTS_EP_High[k]
k:PTS_EP_High[id] at which Total Time Length of PTS_EP_High First Exceeds TM
2nd Level: PTS_EP _Low
PTS_EP _Low [0]
. . .
PTS_EP _Low [h-1]
PTS_EP _Low [h]
. . .
h:PTS_EP_Low[id] at which Total Time Length of PTS_EP_ Low First Exceeds TM
Random Access Point
3rd Level: Main Clip /SubClip
Identify Packet being Random Access Point through PTS Analysis
: PES Packet

FIG. 34

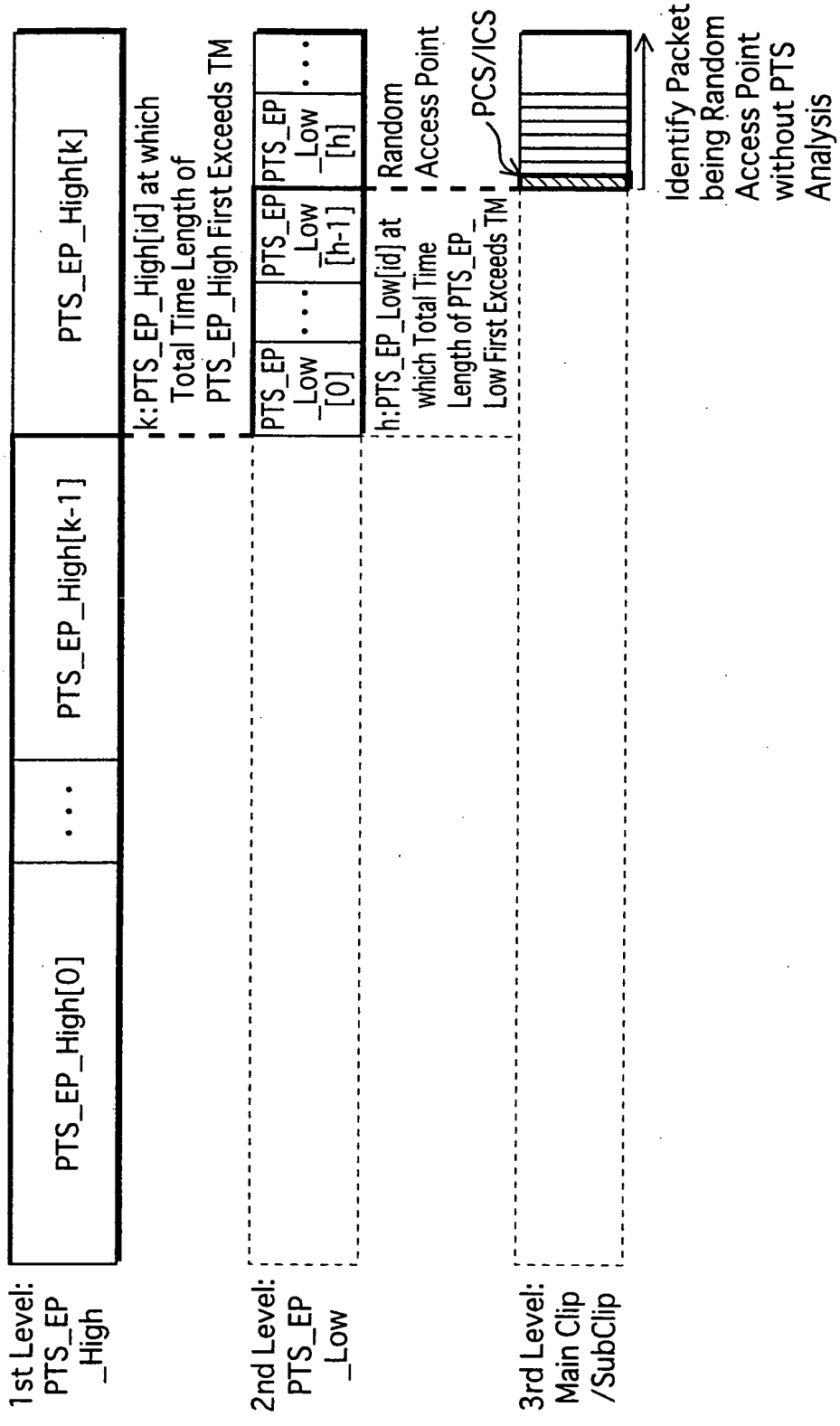
1st Level: PTS_EP _High
PTS_EP_High[0]
. . .
PTS_EP_High[k-1]
PTS_EP_High[k]
k: PTS_EP_High[id] at which Total Time Length of PTS_EP_High First Exceeds TM
2nd Level: PTS_EP _Low
PTS_EP _Low [0]
. . .
PTS_EP _Low [h-1]
PTS_EP _Low [h]
. . .
h: PTS_EP_Low[id] at which Total Time Length of PTS_EP_ Low First Exceeds TM
Random Access Point
PCS/ICS
3rd Level: Main Clip /SubClip
Identify Packet being Random Access Point without PTS Analysis

FIG. 35

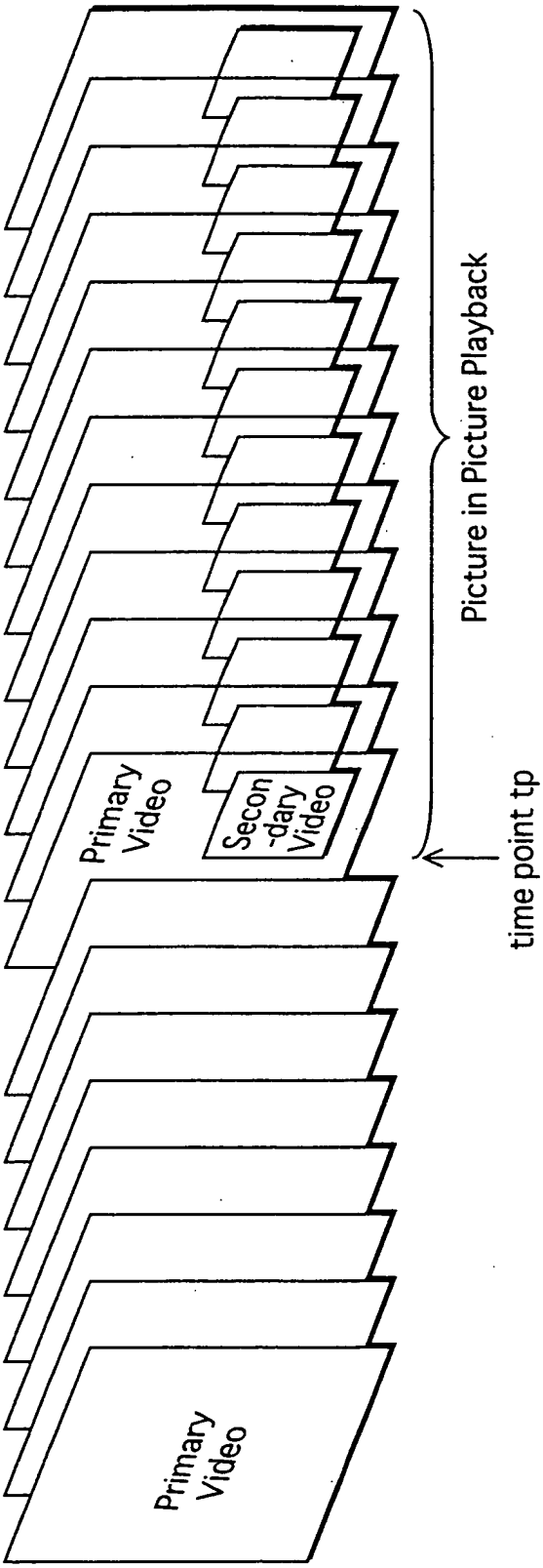
Primary Video
Secon -dary Video
Primary Video
Picture in Picture Playback
time point tp

FIG. 36A

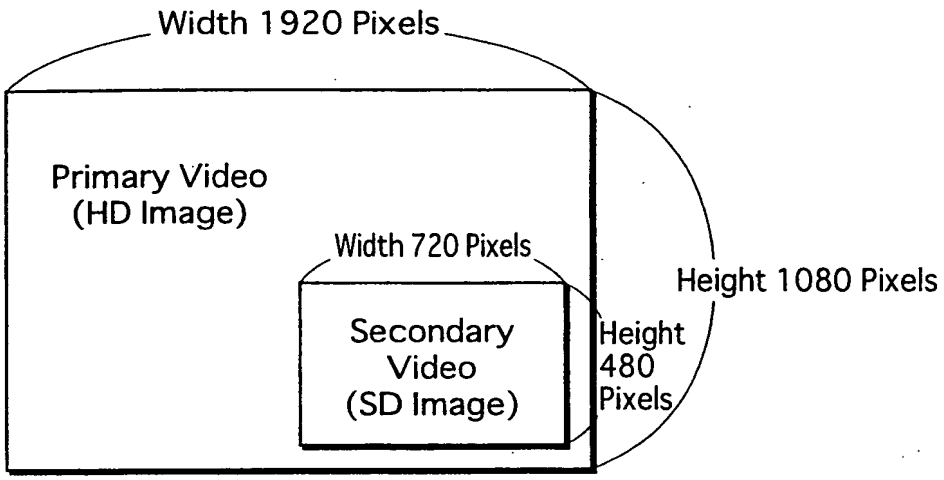

FIG. 36B

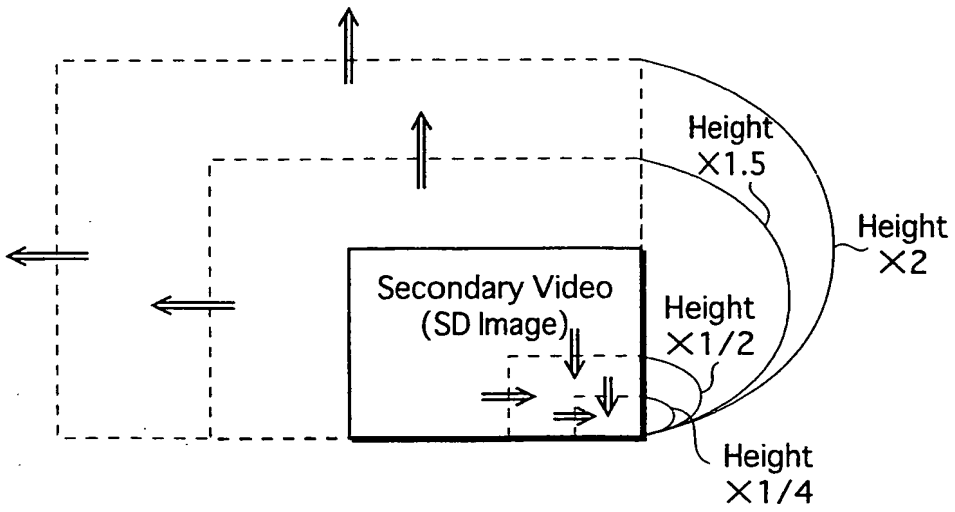

FIG. 37

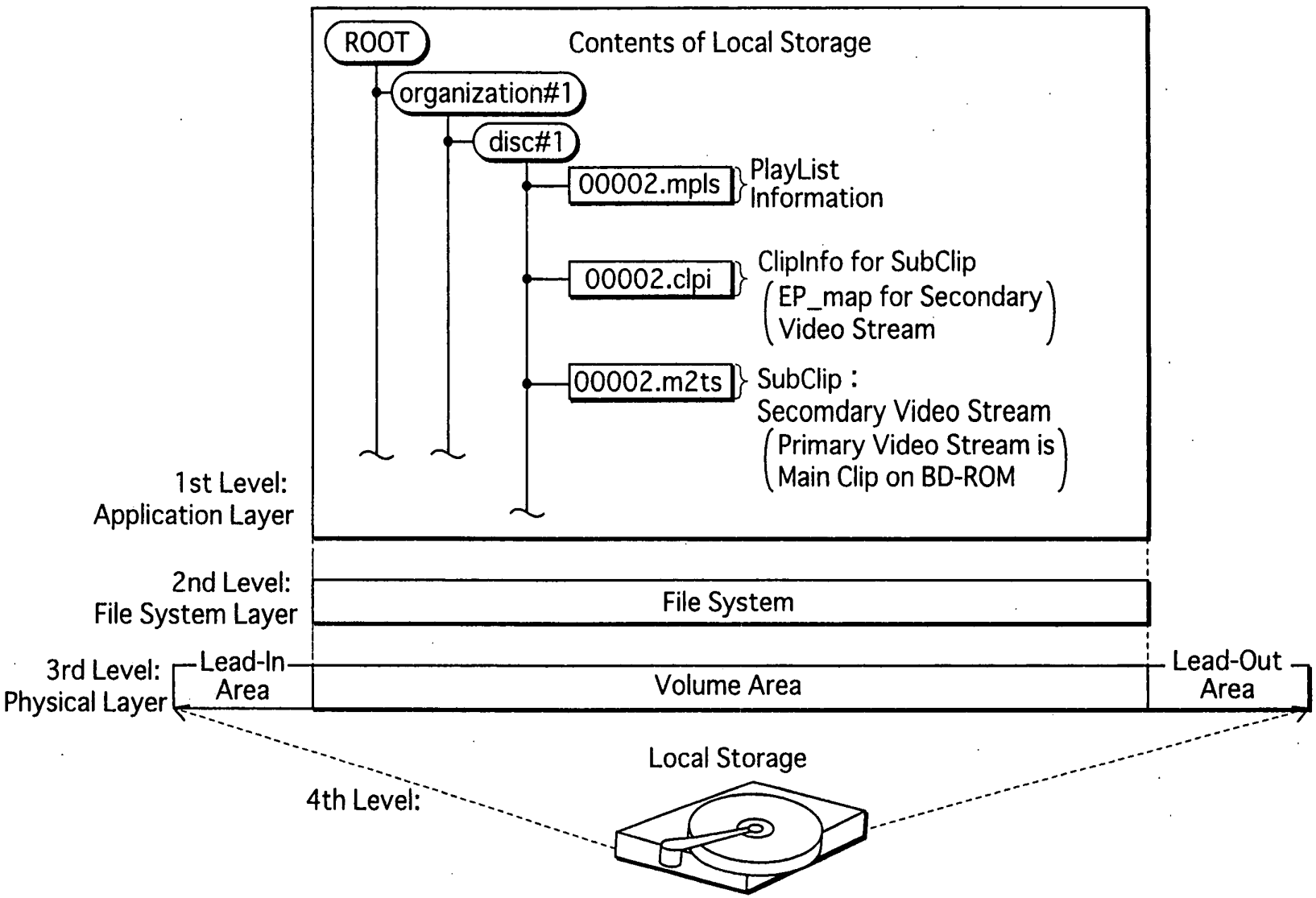

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FIG. 38

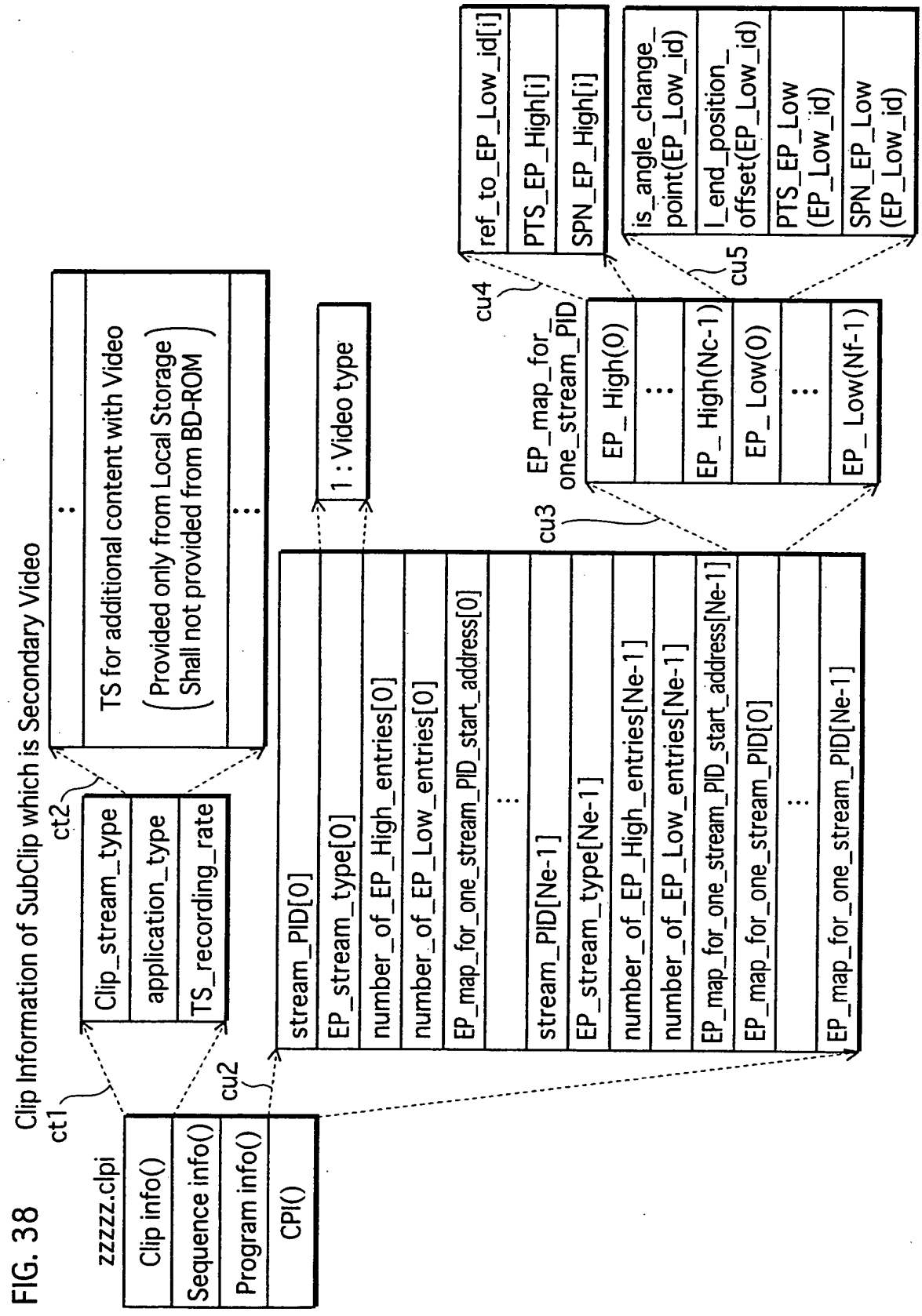
Clip Information of SubClip which is Secondary Video
zzzzz.clpi
Clip info()
Sequence info()
Program info()
CPI()
ct1
cu2
ct2
Clip_stream_type
application_type
TS_recording_rate
TS for additional content with Video
(Provided only from Local Storage
Shall not provided from BD-ROM)
stream_PID[0]
EP_stream_type[0]
number_of_EP_High_entries[0]
number_of_EP_Low_entries[0]
EP_map_for_one_stream_PID_start_address[0]
stream_PID[Ne-1]
EP_stream_type[Ne-1]
number_of_EP_High_entries[Ne-1]
number_of_EP_Low_entries[Ne-1]
EP_map_for_one_stream_PID_start_address[Ne-1]
EP_map_for_one_stream_PID[0]
EP_map_for_one_stream_PID[Ne-1]
1 : Video type
cu3
EP_map_for_
one_stream_PID
EP_ High(0)
EP_ High(Nc-1)
EP_ Low(0)
EP_ Low(Nf-1)
cu4
ref_to_EP_Low_id[i]
PTS_EP_High[i]
SPN_EP_High[i]
cu5
is_angle_change_
point(EP_Low_id)
I_end_position_
offset(EP_Low_id)
PTS_EP_Low
(EP_Low_id)
SPN_EP_Low
(EP_Low_id)

FIG. 39

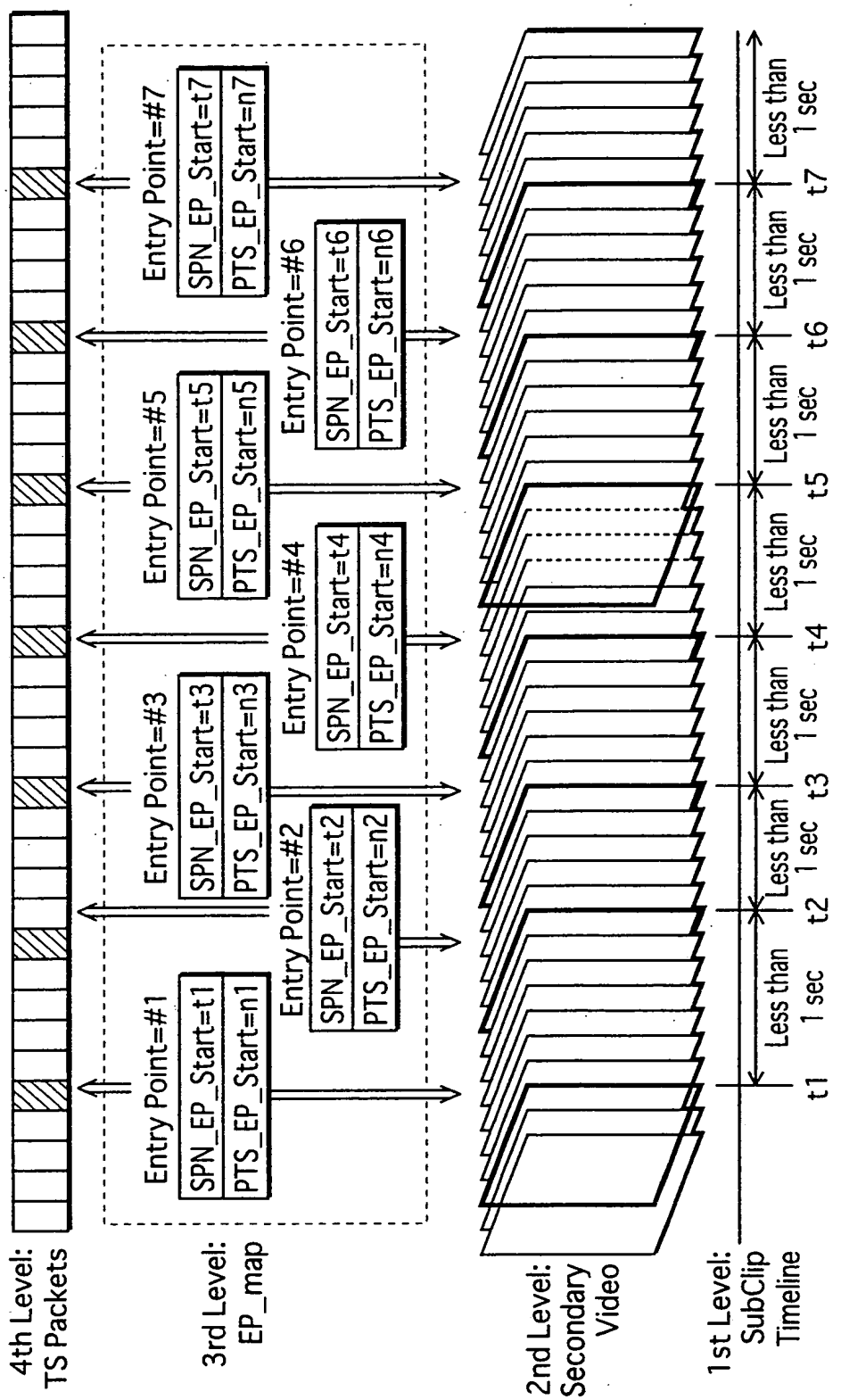
4th Level: TS Packets
SPN=n1
SPN=n2
SPN=n3
SPN=n4
SPN=n5
SPN=n6
SPN=n7
3rd Level: EP_map
Entry Point=#1
SPN_EP_Start=t1
PTS_EP_Start=n1
Entry Point=#2
SPN_EP_Start=t2
PTS_EP_Start=n2
Entry Point=#3
SPN_EP_Start=t3
PTS_EP_Start=n3
Entry Point=#4
SPN_EP_Start=t4
PTS_EP_Start=n4
Entry Point=#5
SPN_EP_Start=t5
PTS_EP_Start=n5
Entry Point=#6
SPN_EP_Start=t6
PTS_EP_Start=n6
Entry Point=#7
SPN_EP_Start=t7
PTS_EP_Start=n7
2nd Level: Secondary Video
1st Level: SubClip Timeline
Less than 1 sec
t1
t2
t3
t4
t5
t6
t7

FIG. 40

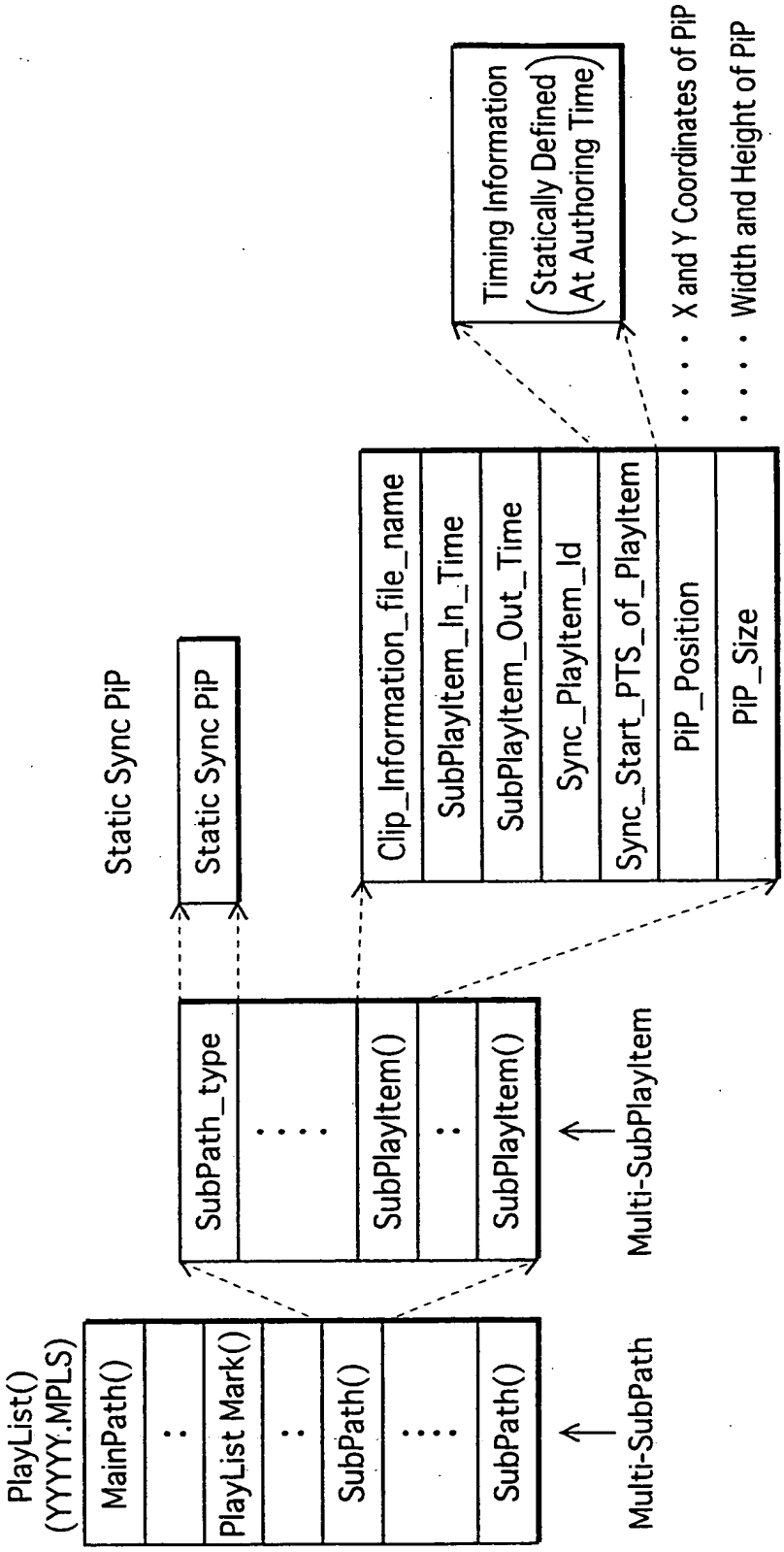
PlayList()
(YYYY.MPLS)
MainPath()
PlayList Mark()
SubPath()
SubPath()
Multi-SubPath
SubPath_type
SubPlayItem()
SubPlayItem()
Multi-SubPlayItem
Static Sync PiP
Static Sync PiP
Clip_Information_file_name
SubPlayItem_In_Time
SubPlayItem_Out_Time
Sync_PlayItem_Id
Sync_Start_PTS_of_PlayItem
PiP_Position
PiP_Size
Timing Information
(Statically Defined
At Authoring Time)
X and Y Coordinates of PiP
Width and Height of PiP

FIG. 41

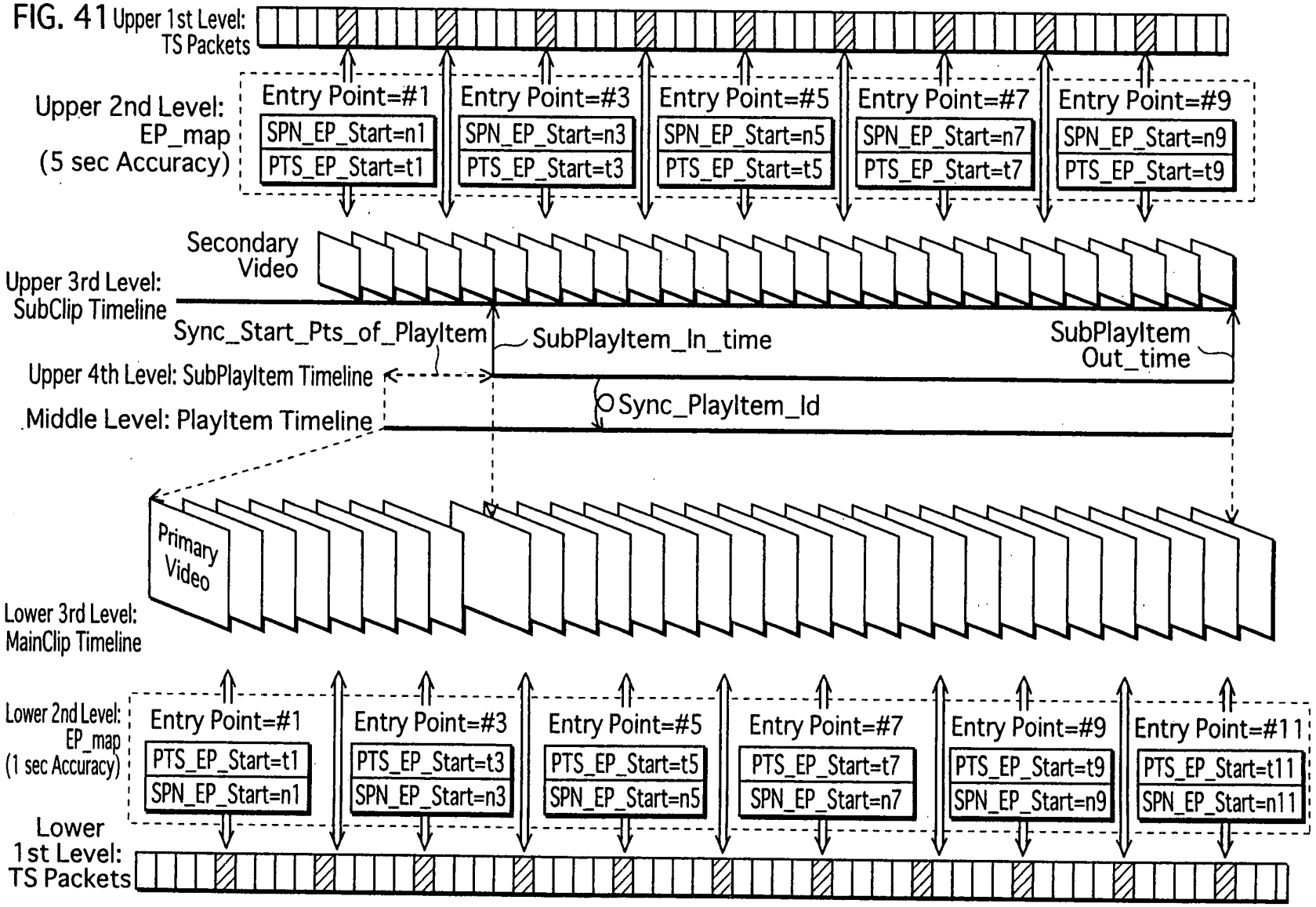

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FIG. 42A

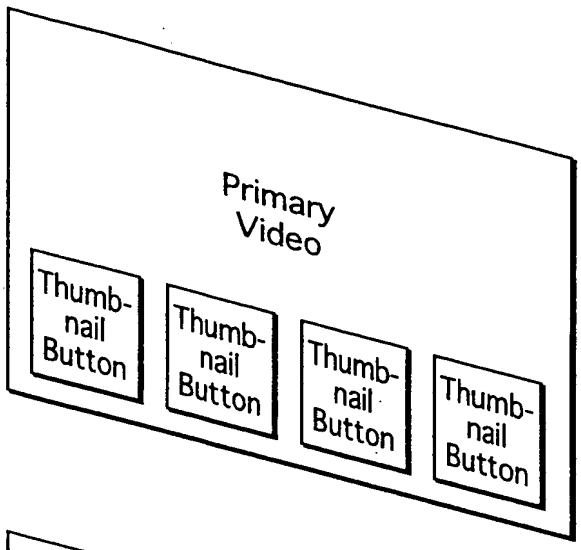

FIG. 42B

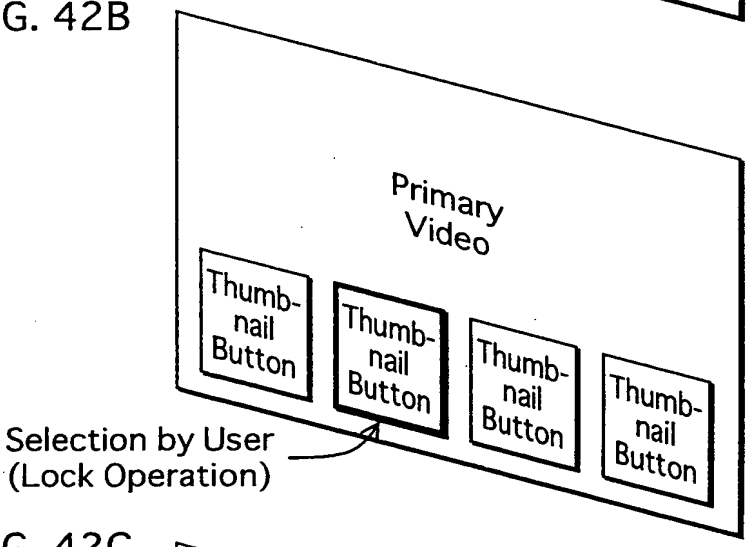

FIG. 42C

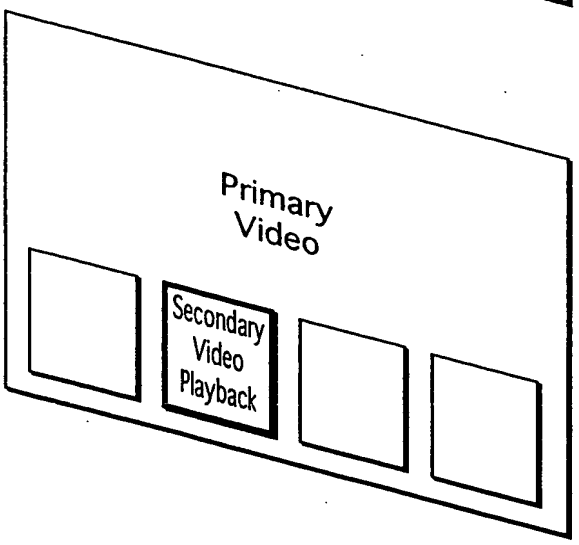

FIG. 43

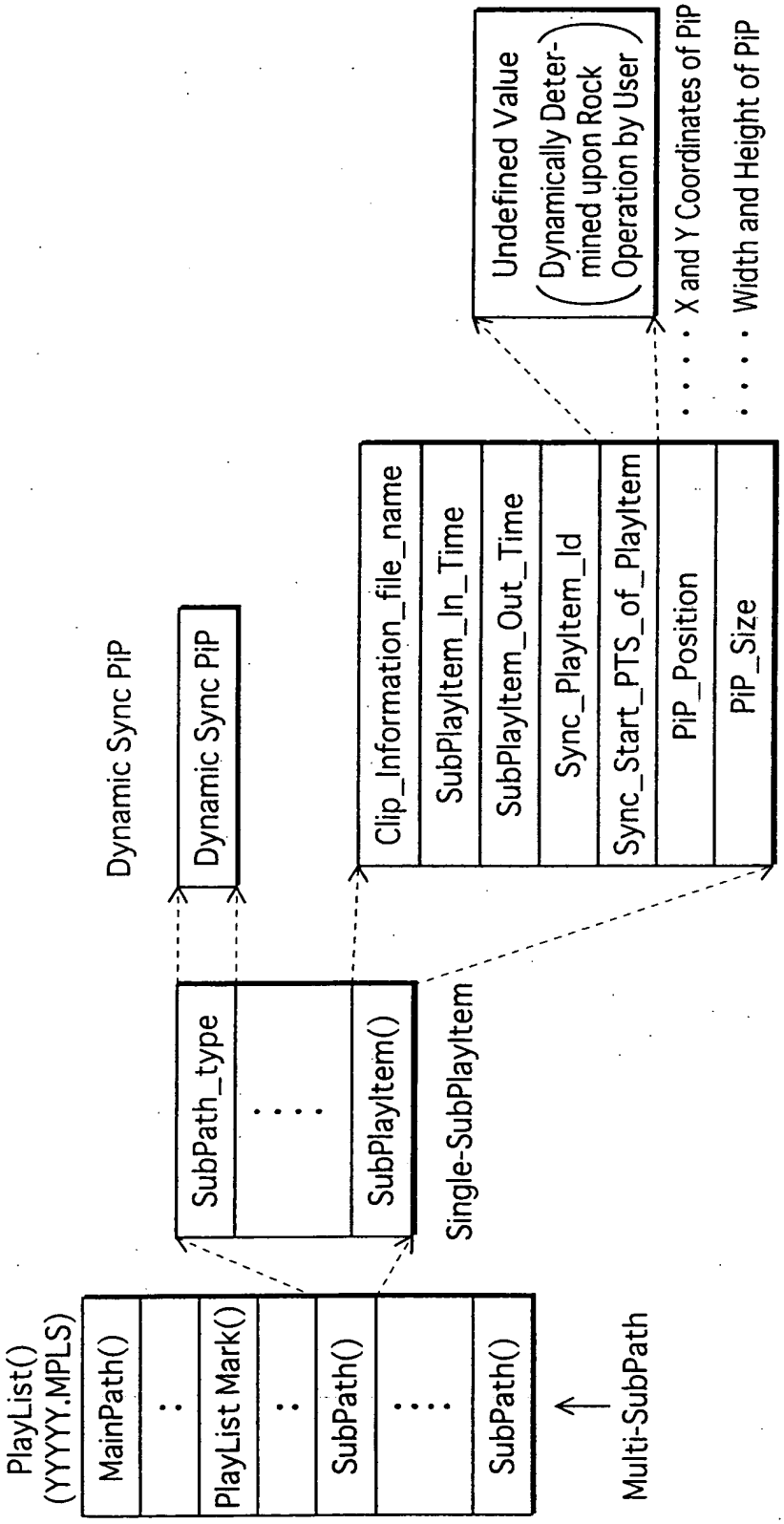
PlayList()
(YYYY.MPLS)
MainPath()
PlayList Mark()
SubPath()
SubPath()
Multi-SubPath
SubPath_type
SubPlayItem()
Single-SubPlayItem
Dynamic Sync PiP
Dynamic Sync PiP
Clip_Information_file_name
SubPlayItem_In_Time
SubPlayItem_Out_Time
Sync_PlayItem_Id
Sync_Start_PTS_of_PlayItem
PiP_Position
PiP_Size
Undefined Value
(Dynamically Determined upon Rock Operation by User)
X and Y Coordinates of PiP
Width and Height of PiP

FIG. 44

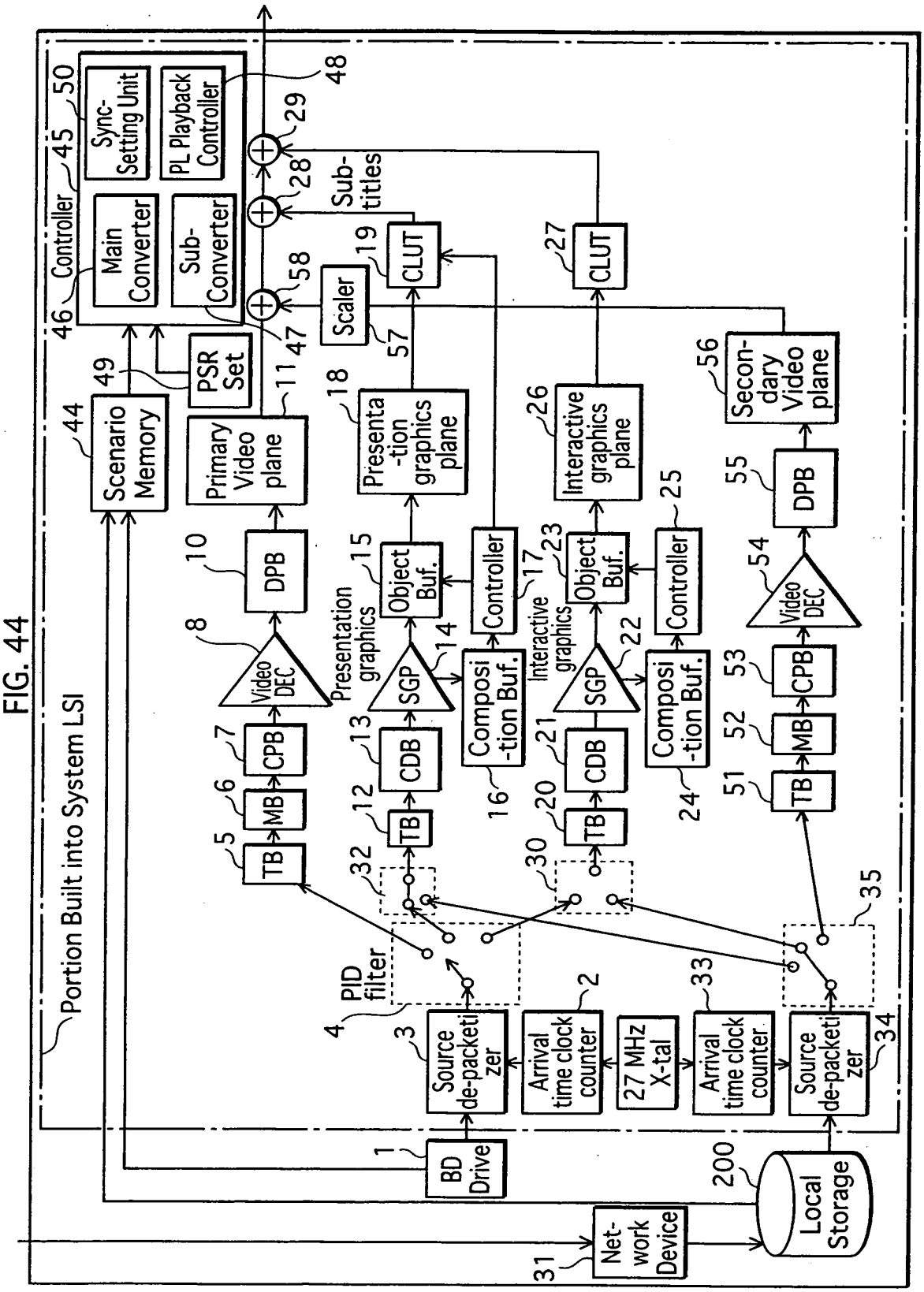
Portion Built into System LSI
BD Drive
Local Storage
Net-work Device
PID filter
Source de-packetizer
Arrival time clock counter
27 MHz X-tal
Arrival time clock counter
Source de-packetizer
TB
MB
CPB
Video DEC
DPB
CDB
SGP
Object Buf.
Composi-tion Buf.
Controller
Presentation graphics
Interactive graphics
Scenario Memory
PSR Set
Primary Video plane
Presenta-tion graphics plane
Interactive graphics plane
Secon-dary Video plane
Scaler
CLUT
Sub-titles
Controller
Main Converter
Sub-Converter
Sync-Setting Unit
PL Playback Controller

FIG. 45

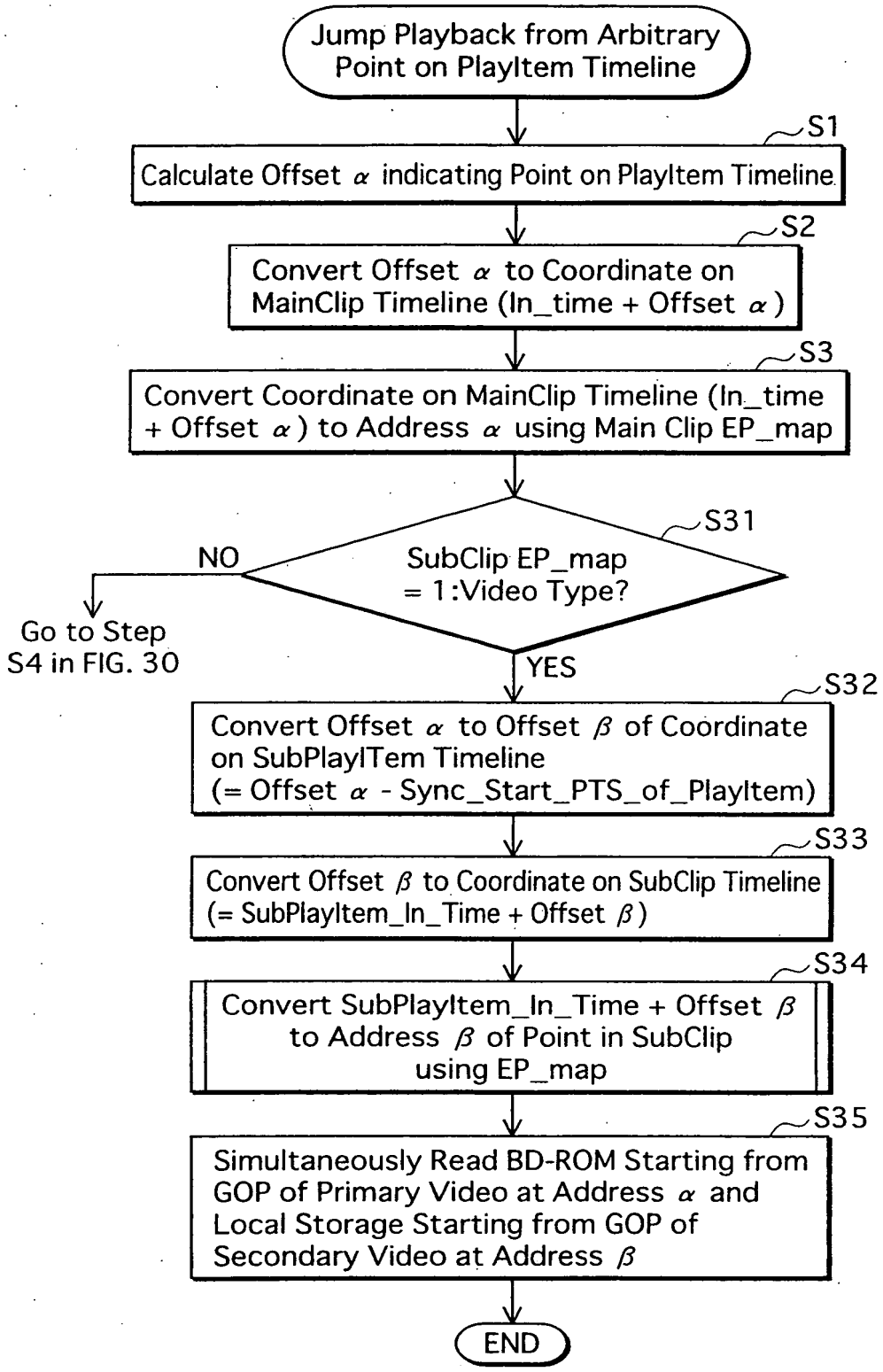
Jump Playback from Arbitrary Point on PlayItem Timeline
S1
Calculate Offset α indicating Point on PlayItem Timeline
S2
Convert Offset α to Coordinate on MainClip Timeline (In_time + Offset α)
S3
Convert Coordinate on MainClip Timeline (In_time + Offset α) to Address α using Main Clip EP_map
S31
SubClip EP_map = 1:Video Type?
NO
Go to Step S4 in FIG. 30
YES
S32
Convert Offset α to Offset β of Coordinate on SubPlayITem Timeline (= Offset α - Sync_Start_PTS_of_PlayItem)
S33
Convert Offset β to Coordinate on SubClip Timeline (= SubPlayItem_In_Time + Offset β)
S34
Convert SubPlayItem_In_Time + Offset β to Address β of Point in SubClip using EP_map
S35
Simultaneously Read BD-ROM Starting from GOP of Primary Video at Address α and Local Storage Starting from GOP of Secondary Video at Address β
END

FIG. 46

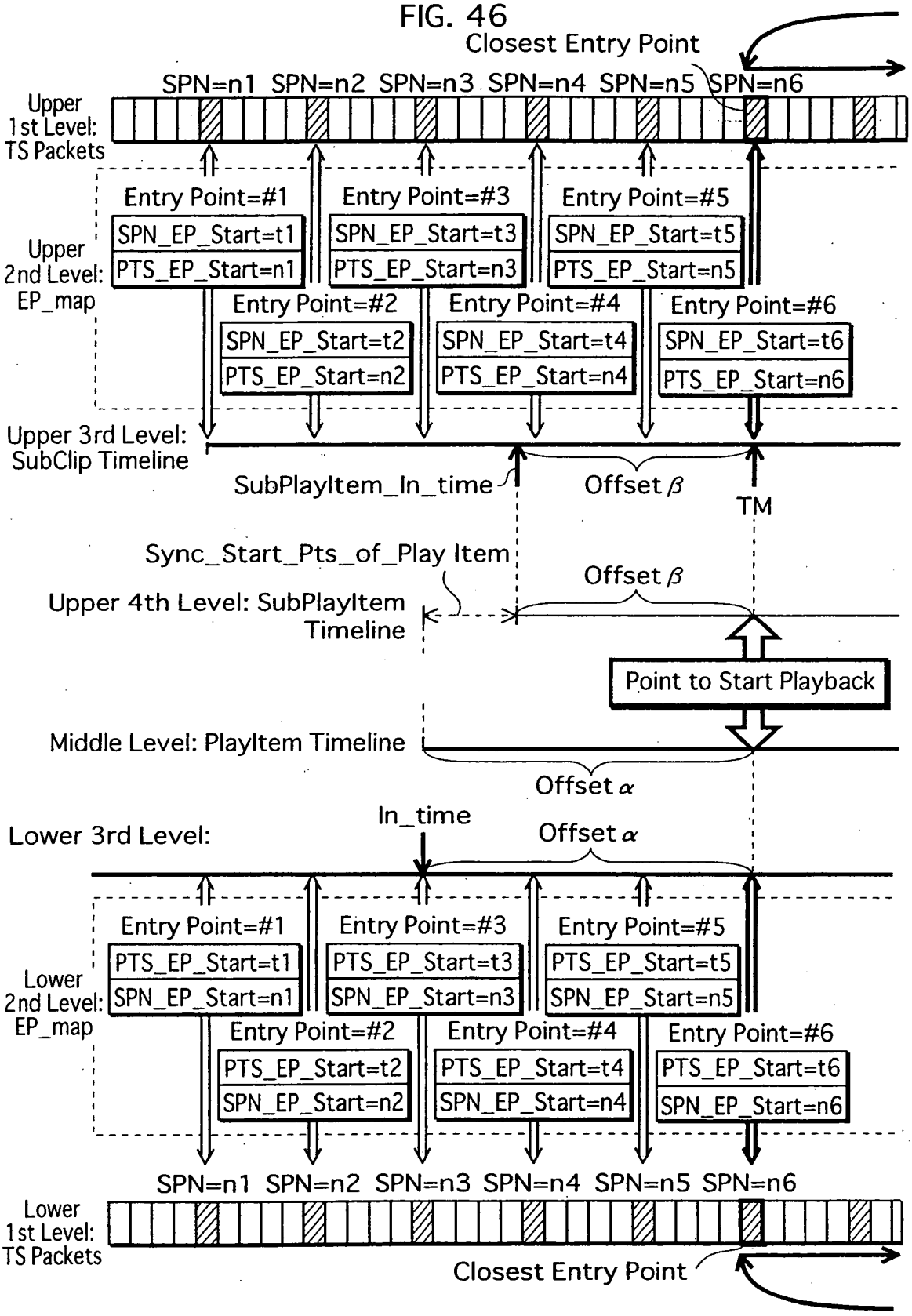
Closest Entry Point
SPN=n1 SPN=n2 SPN=n3 SPN=n4 SPN=n5 SPN=n6
Upper 1st Level: TS Packets
Entry Point=#1
SPN_EP_Start=t1
PTS_EP_Start=n1
Entry Point=#3
SPN_EP_Start=t3
PTS_EP_Start=n3
Entry Point=#5
SPN_EP_Start=t5
PTS_EP_Start=n5
Upper 2nd Level: EP_map
Entry Point=#2
SPN_EP_Start=t2
PTS_EP_Start=n2
Entry Point=#4
SPN_EP_Start=t4
PTS_EP_Start=n4
Entry Point=#6
SPN_EP_Start=t6
PTS_EP_Start=n6
Upper 3rd Level: SubClip Timeline
SubPlayItem_In_time
Offset β
TM
Sync_Start_Pts_of_Play Item
Offset β
Upper 4th Level: SubPlayItem Timeline
Point to Start Playback
Middle Level: PlayItem Timeline
Offset α
In_time
Offset α
Lower 3rd Level:
Entry Point=#1
PTS_EP_Start=t1
SPN_EP_Start=n1
Entry Point=#3
PTS_EP_Start=t3
SPN_EP_Start=n3
Entry Point=#5
PTS_EP_Start=t5
SPN_EP_Start=n5
Lower 2nd Level: EP_map
Entry Point=#2
PTS_EP_Start=t2
SPN_EP_Start=n2
Entry Point=#4
PTS_EP_Start=t4
SPN_EP_Start=n4
Entry Point=#6
PTS_EP_Start=t6
SPN_EP_Start=n6
SPN=n1 SPN=n2 SPN=n3 SPN=n4 SPN=n5 SPN=n6
Lower 1st Level: TS Packets
Closest Entry Point

FIG. 47A

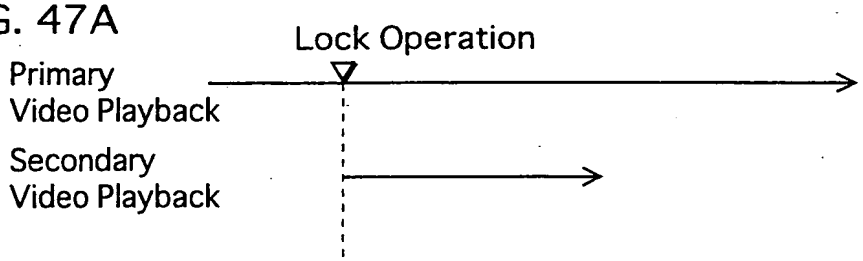

FIG. 47B

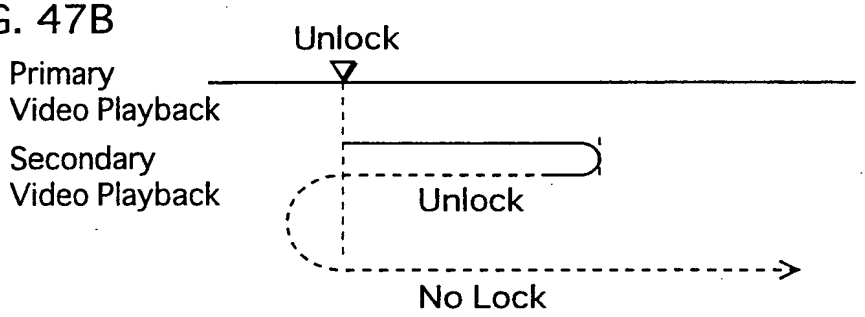
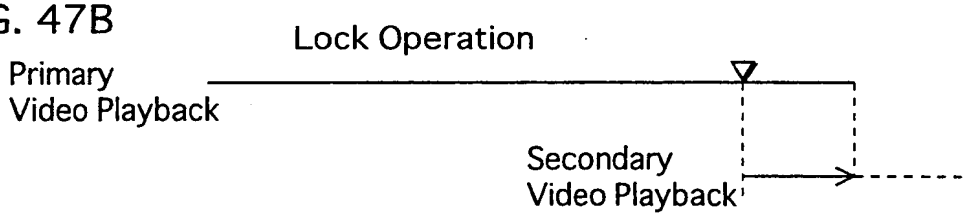
FIG. 47B